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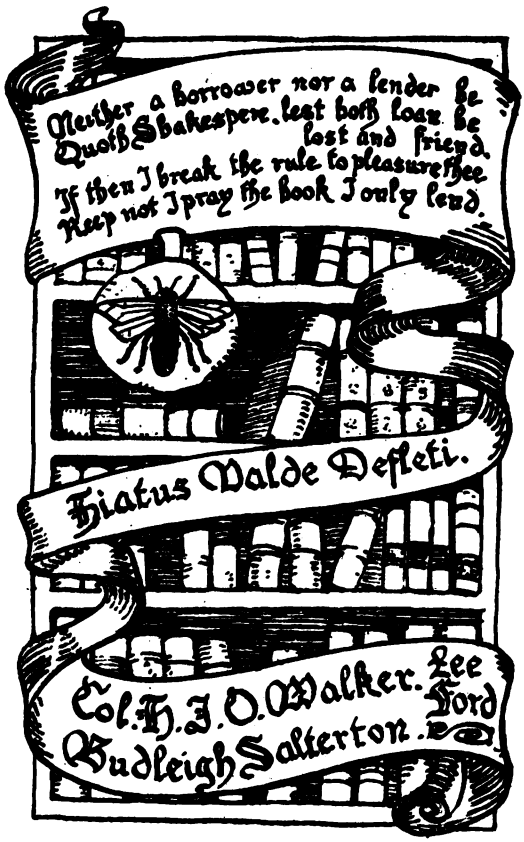

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A THEATRE OF Politicall Flying-Insects.

WHEREIN

Especially the Nature, the VVorth, the VVork, the Wonder, and the manner of Right-ordering of the

BEE,

Is Discovered and Described.

Together with Discourses, Historical, and Observations Physical concerning them.

And in a Second Part are annexed Meditations, and Observations *Theological* and *Moral*, in Three *Centuries* upon that Subject.

By *Samuel Purchas*, Master of Arts, and Pastor at *Sutton* in *Essex*.

Entered according to Order.

LONDON, Printed by *R. I.* for *Thomas Parkhurst*, to be sold at his shop, at the Three Crowns in Cheapside, over against the Great Conduit, 1657.

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W
RTYMB
.F971
1657

TO THE
RIGHT HONORABLE,
Truly Noble, and Religious
LORD,
Robert Earle of *Warwick*, Baron of *Leez*, &c.

RIGHT HONORABLE,

THE Creatures are the Book of Nature, as said *Anthony* the Hermite, who being demanded by a Philosopher, how he could possibly spend his time in the Wilderness, seeing hee was destitute of Books? answered, My Book, O Philosopher, is the nature of all things created by God, which when I please, I can peruse and read. The world is Gods Library, God manifested and drawn out; and all the creatures are

Socrat. hist. Eccles. l. 4. c. 18 Niceph. l. 11. c. 33.

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as Glasses, in which wee may see, and as Scaffolds and Ladders, by which we may ascend and draw nearer to him: For God is a light too strong for our sense, therefore we must (with him in the story) look for the Sun in the West, not in the East; behold the Lord as he is reflected, and refracted, first in the glass of his Creatures, and his Works: And then secondly, in the face of his dearest Son.

God in the School of Nature, useth a method so suitable and correspondent to our dulness, that our meditations should not want in the Creatures Volumes (I may say) wherein to read most excellent admonitions and instructions: In every creature are they engraven in ordinary characters; and in lesser a print; as in the Scriptures, they be written in capital letters once, the Creatures are as a bright glass, wherein we may behold our God; For as God is a glass in heaven, wherein all his creatures are seen, so are the creatures a glass upon earth, wherein we may behold and know our God. They are Trumpets of his honour, witnesses of his worth, bellows

Sir John Hayward, Davids Tears.

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lows of our love, ſpurs to our dulneſs, and judges of our unthankfulneſs.

There is ſome good in all creatures, the meaneſt hath a beam of Gods Majeſty, yet ſome have more than others, the Bees more than (almoſt) any. That a little neglected creature ſhould bee ſo curious in Architecture, and in the fabrick of her hexangle Combs ſhould obſerve as juſt proportions as the beſt Geometrician, we ſhould ſuſpect for an untruth, if wee ſaw it not daily practiſed by them. Oſwald Crollii baſilica chimica.

Nicoſtratus in *Aelian*, finding a curious peece of work, and being wondred at by one, and asked what pleaſure he could take to ſtand as he did ſtill gazing on the Picture? anſwered, Hadſt thou mine eyes, my friend, thou wouldſt not wonder, but rather bee raviſhed as I am, at the inimitable art of this rare and admirable peece. I am ſure no Picture can expreſs ſo much wonder and excellency as the ſmalleſt Inſect: But wee want *Nicoſtratus* his eyes to behold them.

And the praiſe of Gods Wiſdome and Power, lies aſleep and dead in every creature Raymundus in Theolog. naturali.

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ture, untill man actuate and enliven it. I cannot therefore altogether conceive it unworthy of the greateſt mortals to contemplate the miracles of Nature, and that as they are more viſible in the ſmalleſt, and almoſt contemptible creatures, for there moſt lively doe they expreſs the infinite Power and Wiſdome of the great Creator, and erect and draw the mindes of the moſt intelligent to the firſt and prime cauſe of all things, teaching them as the power, ſo the preſence of the Deity in the ſmalleſt Inſects.

What ſhould bee preſented to great men, but great and goodly gifts? In this perhaps many will comply with mee, but then readily deny, that a Diſcourſe of Inſects is to bee offered to your Honour; but I eaſily trample on ſuch exceptions, for although the creatures herein handled, bee ſo ſmall that they cannot fully bee known, and (as worthleſs, and uſeleſs) bee undervalued by many, yet by judicious wiſe men, who meaſure things not by greatneſs, but by goodneſs, they will not only be prized, but praiſed; not only magnified,

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fied, but admired. In all parts of natural Philosophy, the knowledge whereof is most difficult; the contemplation laborious, and the nature most obscure. I have (saith *Aldrovandus*) found that most difficult which is conversant about Insects, and that for their notable, and admirable smalness, which is the reason (saith he) that no man as far as I know, hath delivered many memorable things of them: Only *Aristotle* of the *Grecians* have discovered some things worthy to be known; and *Pliny* of the *Latines* somewhat more, which he collected from the Monuments of *Greek* and *Latine* Writers (which are now lost) and some few things besides there are, which later Writers have taken notice of, but all so lame and imperfect, that still much remains to be added and amended; and so brief and obscure, that many still are ignorant and deceived. Aldrovand. ad lector.

Scaliger is very angry with *Cardane*, that after *Aristotle* he should write of Bees, and add nothing new, nor true: Whereas learned *Scaliger* endeavouring to confute him, is guilty of many absurdities, I cannot Scalig. de subtil. exercit. 198.

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not but expect to hear the ſame reproach from ſome, whom I only requeſt judiciouſly to read, and then to cenſure.

Lipſii Præfat. ad I. Saturnal.

Embroiderers, of threds of divers colours (in the new world of various feathers) make a coſtly and delightful Hanging: So VVriters out of a thouſand parcels, an uniform, and agreeing body; whom I have laboured to imitate, where I have failed, pardon my weakneſs, and accept my good will.

But my long Epiſtle is injurious to your Honours more neceſſary employments. *The Lord preſerve your Honours perſon, with your Honourable Conſort, and all the Noble Branches deſcended from you.*

Your Honors humble
and lowly Orator,

Samuel Purchas.

THE

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A

M. R. Abbot
Abynzoar
J. Acoſta
Actuarius
Ælian
Æſope
Mr. Adams
Agatharſis
Raimund de Agiles
Cor. Agrippa
Albertus
A. Alcynt
Ulliſſes Aldrovandus
F. Alvarez
Alex. ab Alexand.
Ambroſe
Andernacus
Amyretus
Jo. Anglicus
Appian
Alex. Aphrodiſſ.
Hier. Fab. *ab Aquapendente*
Aquinas
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Atheneus
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Avicenna
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B

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Hermolaus Barbarus
Baronius
Barrudas
Broughton
Baſil
A. Battle
Bauhinus
Gorop. Becanus
Beda
A. Bellunenſis
Pet. Bellonius
Bernardus
Pſeudo-Beroſus
Bodinus
Bonfinius
Mr. Bolton
Gio. Botero
Mr. Brathwayt
Geor. Brawn
Mr. Butler
Buxtorfius

C

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Aloyſ. Cadomuſtus
Cæl. Calcagninus
Calepine
Calvinus

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Camden
Camerarius
Al. Campense
T. Cantipratanus
Julius Capitolinus
Cardanus
Georg. Cedrenus
Cor. Celsus
Ranulph Ceftrensis
Chaucer
Chrisostomus
Chytræus
Cicero
Ped. de Cieca
Claudian
Dr. Ckland
Mr. Cobbs
Columella
Natal. Comes
Val. Cordus
Fernand. Cortese
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P. Botton
Mr. Cowper Bishop
Elias Cretensis
Pet. Crescentiensis
Pet. Crinitus
Crollius
Ælius Jul. Crotta
Cæl. August. Curio
Q. Curtius
Cuspinianus
Cyprian

D

Dalechampius
Dr. Day
Diodorus
D. Dike
Dion
Dioscordes
Mr. Down

E

Jacob Ekcelius
Mr. Elton
Marcel. Empyricus
Epiphanius
Erotis
Estates of the world
Euripides
Eustathius
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F

Fazelius
Dr. Featly
Fernelius
Fran. Fernandus
Marsil Ficinus
G. Fletcher
Florentinus
Mr. Fosbroke
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Otho. Frisingensis
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J. Fungerus

G

Galenus
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Theod. Gaza
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Rob.

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Rob. Gloecestrensis
Godignus
Godwin
Mr. T. Goodwin
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Mr. Googe
Gregorius magn.
Gregorius Nazian.
Mr. R. Greenham
Hil. Greg. Gyrald.
J. Ja. Gryneus
Gualther
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Guild

H

Hackluit
Dr. Hakewill
Dr. Hall.
Mr. Harris
Mr. Hartlib
Dr. Harvey
H. Hawkes
J. de la Haye
Sir Jo. Hayward
Helmont
Mr. Herbert
Herodian
Herodotus
Ant. de Herrera
Hesychius
Hesiod
Hieronimus
Higinius
Hilarius
Mr. Hill
Pet. Hispanus
Hippocrates
Mr. Hoard
Mr. Holbroke
Hollerius
Dr. Holland
Homer
Horatius
Job Hortop
Hugo Cardinal.

I

Mr. T. Jacombe
Dr. James
Jarricius
Dr. Jenison
Josephus Indicus
C. Jobson
Dr. Jones
Mr. Johnstone
Josephus
Jovius
Isocrates
Isidorus { Hispalen. / Pelusiot.
Silius Italicus.
Justine
Juvenal

K

Dr. Kilbie
Kimchie
Dr. H. King
Dr. J. King
Krantzius

L

Lactantius
Dr. Lake
Jo. Langius
Mr. Lawson

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Levin. Lemnius
Ambr. Leo
Jo. Leo
Nicol. Leonicus
Lerius
Mr. Levit
And. Libanius
Linschoten
Lipsius
T. Livie
Matth. de Lobel
Mr. Lockyer
Lucian
Lucretius

M

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Magirus
J. Magnus
Olaus Magnus
Majolus
Bapt. Mantuan.
Martial { Episcop. / Poeta.
Matth. Martinius
Marullus
Matthiolus
Pet. Matthew
Mr. May
Menosa
Her. Mercurialis
Mr. Merideth
Mesue
Ped. de Mexia
Mr. Milles
Jo. Miletius
Mizaldus
Rhodol. Modius
Moryson
Mouffetus

N

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Nicephorus
Nicetas
Nigidius
Niphus
Joach. Nizæus

O

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Onesicritus
Paulus Orosius
Adamant. Origines
Ortelius
Osorius
Ovidius
Oviedo

P

Dr. Page, Sanct. Pagninus
Palladius
Guid. Pannyrollus
Paracelsus
Pausanias
Pennius
Perottus
F. Picolomineus
Phavorinus
Philo
J. Picus, E. of Miran.
Pigafetta
Pineda
Geor. Piscatorius
Guil. Plantius
Dr. Playfere
Plautus
Pliny
Plutarch

Polanus

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Polanus
Polybius
Porcacchi
Dr. Preston
Dr. Prideaux
Dr. Primrose
Mr. Purchas

R

Mr. Randal
Raymundus
Mr. Remnant
Mr. Reyner
Mr. Reynolds
Ramusio
Beat. Rhenanus
Ribera
Matth. Ricius
Rivetus
Cæl. Rhodiginus
Mr. Roberts
Mr. Rollenson
Hier. Romano
Rosinus
Mr. Rowlandson
Hieron. Rubeus

S

M. A. Coc. Sabellicus
Salmeron
Hen. Saknouth
Salvian
Sands
Mr. Sanderson
P. Sanflorus
Joaon dos Santos
Jo. Sarisberiensis
J. Cæs. Scaliger
Dr. Sclater
T. Scot
Scribonius Largus
Selden
Seneca
Servius
Dr. Sibs
J. Silvester
Huldrichus Smidel
Socrates
Solinus
Sophocles
Mr. Southern
Spanhemius
Spencer
J. Stobæus
Mr. Stock
Dr. Stoughton
Strabo
Valfridus Strabus
Mr. Struther
Stuckius
Mr. J. Stanes
F. Stancarus
Sylvaticus
F. Suarez
Suidas
Mr. Swift
Mr. Sym

T

C. Tacitus
Tarnovius
Dr. Jer. Taylor
T.
Tertullian
J. Ra. Textor
Theocritus
Theodoret
Theophilact
Theophrastus
Ped. Teixeira

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A. Thevet
Mich. Toxites
Maximil. Tranſilvanus
A. Turnebus
Geor. Turonenſis
Willer. Tyrenſis Arch.
Tzetzes

V

Valerius Maximus
F. Valeſius
Valleriola
Varro
Garrillaſſo de la Vega
L. Vetulam
Vegetius
Vincentius
Virgil
Polyd. Virgil
Vitichindus
Fulvius Urſinus
Dr. Uſher

W

Dr. Wall
Dr. S. Ward
Mr. Watſon
Weckerus
Dr. Williams
Jod Willichius

X

Xenophon

Z

Zanchy

To

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TO THE
Author upon his Phyſio-theological Hiſtory of *BEES*.

WHence this brave flame? and to what ſacred fire
(Divine *Prometheus*!) do thy thoughts aſpire?
Myſterious Nature takes it ill, to be
Dethron'd from her retired Majeſty:
Thy daring hand hath taken off her dreſs,
And ſhew'd her naked, mid'ſt her hid receſs:
Thou haſt broke up her Archives, and haſt ſet
To ſale, her Jewel, and her Cabinet:
Her Iliad in her Nut; and now thy Bee
Is not her work, but her Anatomy,
Which thou haſt handled too, at ſuch a rate,
That 'twere but one ſtep higher to create;
Thou haſt her Miracle ſo here made known
'Twas ner'e hers once, more, then 'tis now thine own:
Hers at the beſt was natural, but thine
Is through thy learned labour made divine;
Paradiſe is her flowry Garden, whence
Shee ſucks Elixir all, and Quinteſſence;
This ſacred ſympathy wee ner'e did know
Till thy high ſoaring ſearch had found it ſo:
That which wee all have yet admir'd was but
The ſhell, thou only feaſtedſt on the Nut;
Whilſt towring far above our common ſenſe
Thou takeſt heaven by thy violence;
And with thy ſoul on wing, invad'ſt the ſky,
Bringing us Angels Manna from on high
In pious raptures; thus this work of thine
Gives us another table Smaragdine;

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Above and Here are like, the Gordian Twist
Is thus unravel'd by our Trismegist:
Now Heaven and Earth in one combin'd we see,
And God and Nature center'd in a *BEE*;
This wee must owe to thee, thy learned sweat
Bankrupts, and leaves us dying in thy debt:
Pardon mee then if unto thee I do
Assert the keyes of Earth and Heaven too:
Gather our Bees! and hiv'd from Envies harm,
Thrive may those stocks from whence these Graces swarm.

N. T.

Upon the Authors Elaborate Treatise of *BEES*.

BRokers in verse condemn it as a crime
To preface Tissue with a ragged rime.
Oh this doth strike mee dumb! and bids mee look,
I draw no Curtain to eclipse thy Book:
No, if my Lackey-muse sets out, poor shee
Runs but to take up eyes to gaze on thee:
Let others sound thy worth in silver mettle
Whilst to thy Bees I rang a jarring Kettle.
My Muse had kept at home, but that she sees
Even Drones themselves indulg'd amongst thy Bees:
I've sometimes view'd thy small Volaticks flye,
Like golden atom's hov'ring in the sky;
And then descending gently one by one,
Like curled locks dishev'ld from the Sun,

This

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This object pleas'd mee well, but when I spy
By wings of fancy poys'd with gravity:
Thy thoughts to soar a higher pitch, why then
My mind's unpleas'd, but better pleas'd again:
I've peep'd into thy Hive, thy Book, and I
Finde Bees t'have less of art and industry;
And sweetness too, and so must needs confess
How long to taste thy hony from the press.
Each page a comb, each word's a bell from whence
Mellifluous dew's distill in eloquence.
Were I to lead thy troops, hither I'de flye
On every leaf to prove their Chymistry.
Here tyr'd and weary thoughts may sweetness scan,
And re-assume new life with *Jonathan*.
Thy observation's quick, what thou hast writ
Speaks thee Dame Natures chiefest favourite.
The thoughts of various Authors thou hast shewn,
And prov'd them flye-blown fancies of their own:
Thou knowest each Bee, their flight, and tracts their stage,
And so hast wrote a second Pilgrimage.

One hony'd 'ore a Tyrants eye to feast
Did run the Gantlope through a Hornets neast.
Wasp-like, who at thy Book exceptions take
Makes thee a Martyr for thy sweetness sake.

Jo. Angier.

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Ad venerabilem Apiarium Authorem, Mr. *Sam. Purchas* Ministrum, de Poly-historico suo Mellificio; nec non lectorem candidum, carmen Anagrammaticum.

Samuel Percas } Nomen
Mel, curas apes } Anagram.

MEl curas & apes, mage oves has diligis illos
Nec fugis, aut ullo negligis ipse modo.
Sancta Theologiæ pandit mysteria voce
Sic tua conscribit suada Philo-logia
Rhetorem & historicum libro nunc aspice docta
Ecce Minister ovum, atque ecce Magister apum.

Ja. Norricius.

To the Reader upon the Philo-logical and Theo-sophical Treatise of BEES.

WHat *Aristotle*, *Pliny*, wrote before,
Virgil, *Aldrovand*, *Scaliger*, *Butler* more;
In this one book see thou mayest more than any,
And marvell not if that I do say many.
All that have written of these Insects nature
So much, which very little are in stature,
I do not know whether for mine own part

Bees

Bees nature moſt, t'admire, or Maſters art;
Who centuries hath perus'd, his eloquence
Beſides experience, mark t'hiſtory,
Philoſophy, ith' Treatiſe, Theol'gy,
You may call't an Encuclopedy, all
For tongues, arts, matter, pos'tive polem'cal;
A Bee-hive for thy life, moſt full of hony
Purchaſe then this *Purcaſan* work, thy mony
'Twill far excell, exceed to thee as gainfull,
As 'twas though pleaſant, to the Writer painfull:
For a ſubject ſo good you cann't leſs give,
Give then good words, and praiſe it while you live:
Or elſe amend, chooſing, or to do better,
Or to deſiſt from the cenſorious letter:
There's hony in his name, more in his book,
Which is mellifluous, come taſte as look;
Make this Anthology Pantol'gy thine
Ambroſian *Purchas* Nectar Divine.
I wonder not it is ſo natural
For thee to be 'bout Bees hiſtorical,
This Treatiſe framed with ſuch artifice
Shews ſome paternal metemſychoſis:
Though ſome Antilogiſts ſhall vilifie
The Work, Work-man, both have my Eulogy.

θυτὰ Critical, the letter of condemnation, Becman. See the Latine Anagram.

To Zoilus.

Can *Mimus* do the like, will *Momus* like
This Polanthean Pantologick book?
With tongue or pen do not perſtringe or ſtrike,
I'le not be Morne, nor Mime, to be I look
While Bees ſhall be, and ſhall their Hony give
This Bee-maſters name, fame, when dead ſhall live.

Ja. Norrice Paſtor of *Camndun.*

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Upon the Authors Learned and Elaborate Treatise of *BEES* in both parts of it, an Encomiastick.

READER, read here a book of *BEES* dissected,
Their nature, stature, feature, parts detected;
Their feeding, breeding, building, industry,
Their prudence, providence, sagacity,
Their peace, their war, their love, their mortal hate,
Their Prince, their Leaders, order in their state;
All these and more unfolded in such wise,
That it a Hive of glass, thou mayest surmise.

Then magnifie this little Creatures Maker,
That (it) of such endowments made partaker;
Wherein his Wisdome, and his power Divine
(As in the heavens above) do clearly shine
In text hand-writing; what thou there dost see,
In smaller letters here imprinted *Bee*.
Next praise the Authors *Bee-like* diligence,
His reading, learning, long experience.

On the second part. Eccles. 12. 10.

And then read on to that which follows next,
The Preachers Sermon on this pretty Text,
Doctrine distilling like the Hony-dew,
Mellifluous, most pleasant, upright, true.
O gather then the Hony from these leaves,
Those vices flye to which thy nature cleaves.
And learn those vertues which the Bees do teach.
Thine understanding, else this book don't reach.

By his loving Friend and Neighbour,
T. P. *Master of Arts*, P. P.

Ad

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Ad doctum Authorem, in Mellifluam ipsius de Apibus historiam carmen, ἐγκώμιαστικὸν.

FLoribus eximiis mel Apes produsere lustrant
Sic (Purchas) *libris roscida mella legis.*
Quæ veteres scripsere diu, tu testibus æquis
Arte probas; Laudem dulce loquatur opus
Tractatus doctus, permiscens utile dulci,
Stillans delicias Religione liber.
Hic labor, hoc opus est, Apibus medicina salubris
Conditur, ac medicam porrigis arte manum.
Mystica naturæ narras, amor urget habendi
Nectar Apis? placida discutis historia.
Gratulor ingenium, librum dum mente revolvo,
Mel sapio scriptis cum pietate novum,

Guil. Rogers *A. M.*

Upon the Authors Treatise of BEES.

WHat Creature ist' that God hath made?
But emblems forth some signal shade
Of that divine and highest power,
Who makes, unmakes, all in an hour,
The sea is fill'd with small and great,
The earth as full, and most compleat,
The glorious heaven beyond compare,
That place where Saints and Angels are:
The basest worm, who eats but dust,
Speaks glorious praise, and that most just;

Unto

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Unto that God who made us all
In his own way; myſterial.
The eye of man is over dim
To ſee the glory that's in him:
His hinder parts wee may behold
Which hee in Nature doth unfold.
Here is the *Bee*, a creature ſmall
Which *Sans*, the reſt, may teach us all
His pains, who hath this *Bee* expreſt,
Shews whether *Bee* or *Drone* be beſt;
Who reads this work ſhall therein finde
A skilful pen, an honeſt minde.
Peruſe it well, and thou ſhalt ſee
More Hony here than in the *Bee*.

Jo. Loane Miniſter of *Little Stambridge*.

In Meliſſologiam a viro omnifariam docto Domino Purchaſo Elogium.

PLurima mandantur chartis de Apibus Monimenta,
Parvi at momenti; plaraque fictitiis.
Atque putatitiis venis ſunt ſcriptare ferta,
Mundus vult falli credulus & fatuus
Falſum pro vero torpenti Comate preſſus
Devorat, (bine ſophia maximus ille labor
Negligitur) ſatis eſſe putans in verba Magiſtri
Jurare, indubium quicquid id ipſius ait
Amplectens: Genio arridet fallacia dulcis
Quodque fovet pigrum ſemper erit placidum.
Sed latet in putei veneranda ſcientia fundo
Anilare ac debet continuo rigidus

Qui

Qui studet optatum tandem comprendere Adeptum
Ille nucem frangat qui volet & nucleum.
Hoc iter ad verum, quo tu mi Purchase docte
Tendebas, credens mobilius sapere
Ex rebus quam libris, mox commercia agebas
Parvis cum Insectis in quibus ipse Deus
Emicat illustris, quorum Idioma tenebas.
(Qui Polyglossus eras) ingenio facili.
Numinis hac tibi pandebant Magnalia summi
Atque loquebantur scibile quicquid erat
De esse suo, absque mora tu Pyramidalia tecta
Ingrediens lustras Dædalea illa opera
De coitu, Genesi, partu, pastuque stupendo
Horum quid regimen, quæ Politeia manet
Illis contemplaris, quæ ad civilia bella
Spectant, ad pacem quomodo sint reduces,
Ambrosium succum quis sit modus eliciendi
Stirpibus e variis arte sua Chymica.
Insuper his de parvis mille Arcana recludis
Mellificis, penitus quæ latuere alios.
Quocirca tibi qui debetur honore rependet
Quicunque ingenuus, proferet & merito
Cunctis hac in re palmam preripuisse.
Plus & Apes viles instituisse sum
Impigrum Dominum de Diis, morum probitate
Oeconomi cura, regis & officio
Qua spectant populum quam immensa volumina quot
Lector in hoc solo nititur ὄυλῳ ἔφη.

G. T.

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To the Learned Author of this *Bee-like* laborious Treatise.

WHat shall I praise the Author or his pen,
Or run division t'wixt them both? oh then
My Muse would tire, his name needs not my layes
His fathers Pilgrimage earst ware the bayes,
I then will sing the praise of Monarchy
In female sex whose curious industry;
Just rule, sweet concord and frugality;
Mortals amaze, when into it they pry.
But learned *Purchas* spight of spears is bold
Their Castle to assault, and doth unfold
Their nature, kindes, products, and curious works,
Their valour, order, wealth, and what ere lurks
Within the concaves of their golden wall
He hath spied out, and doth impart to all
Much worth's in least of things I now beleeve
The busie *Bee* hath taught me from her Hive.
Sith Natures Ark's broke ope, come all and view,
Mysterious arts, secrets both old and new.
But herein doth excell his proved skill
Surpassing far the rudeness of my quill.
Grave meditations both Moral and Divine,
He hath extracted from dark Natures mine;
Much labour hath procured this pretious oar,
And gathered hony sweet suck'd from each flower:
And thus by imitation truly wise
He doth not scorn to learn of puny flyes.
Thank then the Author, admire the little *Bee*,
But give the God of Wisdome praises free.
Muse now be silent, let himself relate
The rare news he 'ath brought from *Scithian* state.

Jo. Fisher.

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ERRATA.

PAge 9. l. 6. blot out I in Scaliger, p. 10. l. 3 blot out not, p. ib. l. 14. r. about the Cape de brun Speranza, so black, yet both under the same Tropique, why the Abyssines are but Tawny Moores; when as, &c. p. ib. l. 16 r. are very black, p. 12. l. 38 r. quiescent, p. 15, l. 22. r. Aldrovandus, p. 30 l. 34. r. out of, p. 30. in marg. r. Pod. de Mexia, p 35. l. 17 r. wasters, p. 42. l. 1. for may r. nay. p. 44, l. 31. r. Aristotle: p. 45. l 5. r. sit: p. 46. l. 37. r. milk: p. 47. l. 28. r. analogous: p. 49, l 37. for none, r. any: p. 51. l. 22. for for, r. from: p. 52. l. 6. r. excrements: p. 75. l. 20 r. *siculæ*: p. 75. l. 21. r. Hymetti; p. 75. in marg. r. Maiopotmos; p. 97. l. 5. r. Mouse; p 99. l. 16. blot out then; p. 101 l. 19. r. puta; p. ib. l. 24. r. upon the empty hive; p. 104. in marg. r. Fazellus; p. 110. l. 34. r. tattered; p. 115. l. 16. r. second; p. 119. in marg. r. Joaon dos, &c. p. 122. l. 4. for after, r. often; p. 128. l. 10. blot out their; p. 130. l. 14. r. Pancyrollius, p. 131. l. 4. blot out of; p. ib. in mar. r. Pancyrollus; p. 133. l. 20 blot out dew; p. 138. l. 32. blot out ascribes; p. 144. l. 10. should have been placed p. 143. l. 35; p. 157. l. 18. r. Hollerius; p. ib. l 35. r. Gizi, p 160. l. 34. blot out which; p. ib. l. 35 r. on the other side; p. 163. l. 10. r. Hermonax; p. 164. in marg. r. Tit. Livius; p. 165. l. 8. r. Olynthia; p. 173 l. 7. for one ounce of; r. out of; p. 179. l. 29. r transverse; p 185. l. 32. r. once, p. 190. l. 1. blot out if; p. ib. l. 20. r. continue; p 195. l. 27 r. russet; p. ib. l. 36. r. yet within all, &c. p. 201. l. 5. r. once; l. 16. r Diaconus.

ERRATA *in the Second part*.

Page 258. in marg. r. D. Dike; p. 262. l. 21. r. return; p. 267. l. 21. r. maketh them consistent; p. 310. l. 14. r. stubborn; p. 311. l. 5 r. make; p. 318. l. ult. r. spat; p. 345 l. 20. r. wrought; p. 348. l 32. r. reine; l. 33. r. Bees; p. 364. l. 15. for tangle, r. taile; p. 370. last line, for Drones r. Daves. p. 374. l. 6 r Plaucus; l. 24. r. In Pitchers; l. 26. r. advantage; p. 376. l 17. r. admit; l. 18 for were, r. are; p. 381. l. 12. for to, r. To; p. 382. l. 8. r. *quæsitum*; p. 386. l. 27. r. which is; p. 387. l 9. r. last.

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A Theatre of Political Flying Insects.

CHAP. I.

The Excellency of Bees.

BEes are the most excellent of all Insects whatsoever, and expresse both worth and wonder in all their waies: They only afford delightful food, and pleasant nourishment for man, whereas the best in other kindes serve only for Physick, or the pleasure of the eye, or the delight of the ear, or the cloathing of the body: the most part whereof is by these also some way or other abundantly supplyed; so that natures power is no lesse in Bees, than in the greatest, and most perfect creatures; for hee that made the Camel, and the Elephant, made the Bee too. This is somewhat, but yet not enough; because they are the most excellent Creatures for Prudence, and profit, except man; and indeed the divine wisdome hath thus ordered it, that wee might understand that Prudence consists not in the greatnesse of the body, but in the minde, which hath no need of magnitude, but as it is lesse, is so much the more excellent. Here is *magnum in parvo*, a little in quantity, but much in worth and quality.

Jo. Rainf. Text. Epithet. Dr. Jones Comment in Epist. ad Phileem. Carden. l. 7. de Varietat. rerum.

The Bee is a little creature, but Gods smallest springs prove at length main Oceans, his least beginnings grow into great works, great wonders.

Who can imagine that so many pleights and joints, con-

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nexions, and concatenations, should bee orderly disposed in so small a fabrick? That in a body so little, the joints should move so actively, the wings stirre so nimbly, the sting penetrate so deeply, the senses utter forth themselves so sharply, Nay, the lungs, (though scarcely visible) to breath so powerfully, doth any then glory, or is proud for his skill in various arts! What in this respect is wiser, or better instructed than the Bee? What Artificer is so various, what Painter, what Geometrician can imitate her works?

Chrysost. Comment in Epist. Paul ad Philip. c. 2. v. 4.

Why do wee then marvail at the Tower-bearing shoulders of Elephants, and not rather where Nature hath planted so many senses, and such industry in such little bodies? where is hearing, seeing, smelling, tasting, and feeling, yea where are the Veines and Arteries in these so little bodies, which a little distance from us can scarcely bee seen with our eyes: And what shall wee say of the parts of the same? and yet in this little Bee is such sagacity and industry, as the like is not seen in creatures of greater quantity.

Pliny saith, no creature can live or move without them.

The great Artifex of Nature hath enlarged the smaller creatures with wisdome, and invention, so teaching that greatnesse is to bee found in meannesse (as the Apostle saith) strength in infirmities. Imitate if thou canst the Bees buildings, the Ants hills, or lodgings, the Spiders nets, the Silk-worms webbs.

Tertul. adversus Marcion. lib. 1.

Such therefore are not a little mistaken, who affirm that there is neither much strength, nor yet such beauty in small creatures, as in the greater; nay, that whereas the greater, as the Elephant, and Horse are profitable, the lesser serve only to offend, whereas what Creature for profit can compare to the Bee, or the Silk-worm?

Ant. de Guevara famil. Epist.

And though the greatest thing the Vulgar praise her for, is her laborious industry, yet indeed the least thing that may bee praised in her, is her industry.

For, If old times admire Calicrates
For Ivory Emmets, and Mermecides
For framing of a rigged Ship so small,
That with her wings a Bee can hide it all.
Admire wee then th'all wise omnipotence,
Which doth within so narrow space dispence
So stiffe a sting, so stout and valiant heart,

Du. Bartas fifth day.

So

So loud a voice, so prudent wit, and art:
Their well rul'd state, my soul so much admires
That durst I lose the reigns of my desires,
I gladly could digresse from my design,
To sing a while their sacred discipline.

CHAP. II.

Of the Name.

IN *Hebrew* a Bee is called, דְּבֹרָה *Debora*, from the order of their work, which they frame with admirable art and industry; Among the *Greeks*, Bees had various names, according to the variety of Nations, and Countries, but the most Vulgar was, μέλισσα (and *Hesiod* hath μελία παρὰ το μέλι, from Hony, whereof the Bee is the Chymical preparer) and they are also called, μελιτται α μελετῶ, because no Insect is so profitably industrious. The *Latins* call them *Apis* and *Apes*, because as *Virgil*, they are *trunca pedum primo*, first bred without feet: And indeed the Worm or Potential Bee, called by the *Greeks* χαδον, *Schadon* is without leggs, but after her Metamorphosis (of which afterwards) shee comes forth a six-legged creature, but because this Etymology answers not Analogy, as other compounds, it is supposed by others to bee a simple word: So also *Servius* and *Pyr. Perottus* in *Cornucop.* *Lucian* therefore calls them, ζῶα ἄποδα, A. *Canlep. in dictionar.*

The word Bee, according to *Goropius*, is originally Dutch, and therefore English; and so composed (saith hee) because it affords us many things: Wax, for curing of dolours, wounds, Ulcers; for lights, Ceare-cloath, and many other things; and for Hony it would require a daies work to declare the benefit and worth thereof. And though these bee great benefits, yet there are more excellent and remarkable to bee observed from this Creature: For every Common-wealth, every Kingdome receive their best directions and precepts, whereby the duties of the King towards the people, and of the people towards the King, and of the Citizens among themselves are most

Gorop. Becan. Hermath. lib. 6

most clearly taught. If they hold forth any patterns to us, wee readily write after them, and practise them. For it signifies also, saith hee, to command or rule, because it is the same supream Majesty, that affords and bestows all things, and commands all things. Wherefore the Architect of words by a singular prudence hath commended to us Monarchy, included in certain limits by the name of Bee; which state whosoever attains, it is necessary that hee imitate the King of Bees, who so deports and carries himself, that hee is beloved, provided for, and protected by all the Bees; and yet in the mean time so farre from offering injury or wrong to any, that he hath no sting to hurt any (so *Gesopius*) but which is truer and better, hee never useth it to the hurt of any.

CHAP. III.

The Definition and Description of a Bee.

A Bee is a Flying Insect, four winged, six legged, best skilled in making of Hony, her shape is little, brown, bowing, oblong, not globous, as some: Her eyes are covered with a horny membrane, or tunicle for their better defence and safeguard; they are of a shining black, like Jet, transparent as Glasse, immoveable, contrary to *Aristotle*, who saith, all Insects move their eyes, as four-footed beasts their ears; not sunk within their heads (as *Mouffetus*) but somewhat prominent, no eye-brows: Their eyes are placed on the outside of their cheeks, or rather are in stead of cheeks; oblong, greater above than below, through which the species of things visible are conveyed to the common sense. The horns are called by *Aristotle*, *Antennæ*, because they hold them forth before them; They are very pliable, and readily bending almost every way: they grow almost at the top of either eye, for defence with two joynts, one close to the head, the other towards the middle, so that shee can put them forth at full length, when shee will, and draw them down again close to her head: And they are the proper instruments of the sense of feeling, by which, with the least touch, shee suddenly senseth any tangible object.

Mouffet. Theatr. insector.

Arist. de partibus, animal. lib. 2. c. 13. and also Plin. lib. 11. c. 37.

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The Drones eyes are farre larger, being almost two thirds of their head, with two moveable wreathed horns, growing out together between the eyes, but extending like a fork.

For gathering her provision, shee hath two instruments, her fangs, and her tongue; her fangs in fashion of a pair of pincers, hang not as the jaws of other things, one over another, but side-waies, one against the other: Her tongue is of that length, that her mouth cannot hold it, but being doubled between her fangs under her throat, it reacheth to her breast; it is divided into three parts, whereof the two outmost serve as a case to cover the third, which being the chief, the Bee in her work, putteth forth beyond the other, and draweth in again as shee pleaseth, and this third is likewise parted into three; so that there are five in all.

In their fangs or chaps, wherein are their teeth, their principal strength consisteth; for in their conflicts, where they slay one with their sting, they kill twenty with their teeth, quickly biting off the wings, or breaking the leggs of their adversaries: And therefore Mr. *Butler* was somewhat deceived, who accounteth this pinching of other Insects (for against them only do they use them) to bee rather a chiding, than a fighting, a warning, than a punishment; being indeed a deadly and mortal instrument of revenge; so that after a battel you shall see them lye sprauling, hopping away, and crauling in great multitudes, either drawing on the ground one, or more of their leggs, or doubling the nether part towards the ground, or turning the same awry to the one side, or other, but as many as are bitten, within a short space will certainly dye.

They runne at first limping away, but survive very little: And that they are not stung to death, that in such variety of motions, proclaim their various hurts is very apparent.

First, Because there is no sting appearing in them; nay, more die lamed in their leggs, than hurt in all other parts; and besides, their leggs are not susceptible of a sting: And if you observe many of them, before they be let go by their Antagonists, the Victor retains her sting still: But saith one, their skin is so thin and dry, their spears come away again without hurt to themselves, but this is not so, for I have often seen them stricken in their backs, and breasts, and also between their pleights, or ringles of their

Mr. Remnant. Hist. of Bees. c. 3.

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their nether part, and the sting herein detained. It is true in a great Carnage, very few are stricken with their sting, or spear which they are loath to use, when their fangs will right them; as they will against Insects, because it is deadly also to themselves.

——*Animamq; in vulnere ponit.*

But their stings they chiefly use against men, beasts, and Fouls, for knowing that their bitings are little, or no way prejudicial against such able creatures, they will kill themselves to injure others: for their sting like a barbed arrow, once entred into skin or flesh, is holden so fast, that they cannot draw it out again; and when they would bee gone, leave therefore a part of their entrals fastened to it, so that when they overcome by stinging, they get a Cadmian victory, loseing thereby their own lives. They are hairy almost all over their bodies, especially the fore-part.

A Bee hath four drye pellúced skinny wings (and so have all Insects that live in fields, and wander about for their food) two are growing near together, on either side of their shoulders, but the inmost are somewhat shorter than the other, least they should hinder their flying; and these swiftly convey them into every place (though some miles remote) round about their habitations, until by often using of them, they grow torn and jagged (the infallible characters of old age, and death) and are unable to support them, yet will they venture forth (but with the price of their lives) not being able to return.

Aristot. de partibus animal. lib. 4. c. 6.

The hinder part of their bodies is full of ringes, or pleights, of which this reason is given: the beginning of motion must bee in some part, which if it were hard, could not be moved; but with the leggs, as Crabbs, but if it were all soft, it could much lesse be moved, because there is nothing firm; and therefore there is a necessity of these ringes, that interchangeably the hard parts may be mixed with the soft.

Cardan. de subtil. lib. 9.

Their tails are somewhat sharp (the Drones more obtuse) within which is their stings joyned to their entrals, which ordinarily lie hid (as *Aristotle*) least they should bee spoiled, but they readily exert, and put them out on all occasions such (as I said)

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said) to offend men, and beasts, than their own kinde: there is another use of them for the consumption of the superfluous humidity.

Avicen de anima, lib. 8, c. 3.

They have a place for evacuation under them, and for generation also, as some conceive. Her feet are six, dew-clawed, pliant, full of joynts, hairy, and as it were, two toes at the extreamity of either foot: her hindmost feet are longest, that shee may put them forward to her formost, which receive from her tongue the Bee-bread, and wax, and working it on the thighes of the hindmost, shee stands in the mean time on the middle-most; and though shee can, and doth ordinarily stand and go on all her feet, yet the two foremost have with her the use of hands, therewith shee stroaks and clears her eyes, before her setting out, but principally in her working for the disposing of her labours to her thighs. All her feet are scabrous, and rough, to take hold at the first touch, and not that the flowers which they carry may readily stick on them, as one saith: this cannot bee, for they carry no flowers, but suppose him to understand the Bee-bread gathered of flowers, yet still he fails, for this is carried on the thighs, and only of the hinder feet.

Aldro. vand. de insectis lib. 1.

In their head is a brain, their back and breast is a kinde of reddish fibrous flesh, in their stomach, is a heart and other necessary members (of which more afterwards) in the hinder part of their bodies, is a little bottle, or bladder (it is not in the stomack, as *Mouffet* delivers) the mouth of it reacheth, or openeth into the stomach.

In this they carry hony, which with their heat, they defecate, purge, and concoct, whereby it lasts longer than all Aerial Hony, or Manna, and rarely, if at all, corrupts. Sometimes they carry water, likewise in this bottle, and not in their bill, according to Mr. *Hill*, his expression, nor yet in the soft mollitiesse of their whole bodies, as hee also delivers; they have but one contracted entral, which extended, is as long as the body: The excrements are liquid, fluid, and yellow.

Mr. Hill Treatise of right ordering Bees.

Aristotle in the Description of the *Chameleon*, a vile (and in many Countries a Vulgar) Creature, is very exactly, particular, and large. *Scaliger* having commanded this, and wished for like diligence in others, saith, My judgement is, that a Philosopher must

Julius Cæsar Scaliger com. in Aristot. de Hist. Animal. lib. 2. c. 14.

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must omit nothing, for though some things bee known to some, yet it is a secret to many, wherefore, whosoever writes, seeing hee writes to all, must do this common courtesie to all.

I question not, but that many will account mee too full, nay, tedious many times in this discourse; but I cannot shut a long foot into a little shooe, nor enclose so many Iliads of observations (as one did the Iliads of Homer) in a Nut-shell; for this would prove an *indecorum*, for though the Bee is little among such as flye, yet her fruit is the chief of sweet things; and shee is full of wisdome: and as the great Ocean hath in it things creeping innumerable, both of small and great beasts, so doth the Bee afford observations innumerable. Political, Moral, Physical, and Metaphisical, it is no wonder then if the Fishermen in this Sea cannot take all, yet with industry may they have draught enough, and such plenty of various speculations as may delight, if not satisfie the patient Reader. Too much curiosity may drown us with *Aristotle* in the bottome of the Sea, or burn us with *Pliny* on Mount *Vesuvius*.

Eccles. cap. 11. v. 3.

CHAP. IV.

Of the Kindes and Colours of Bees.

Aristot. de Hist. Animal. lib. 9. c. 40.

Albert. Mag. tract. 4. c. 2.

Aristotle reckons up nine sorts of Bees, and *Scaliger* commends this distribution, wishing hee had been so exact in other creatures, whereas here hee abounded more in words, than things. *Albertus*, herein *Aristotles* Ape, enumerates as many, but in strange and barbarous termes, which it seems he forged in the shop of his invention: But whatsoever the Ancients have related concerning diverse kindes, and some Neotericks, to appear as knowing as any in former ages, have described; wee in these parts of the world acknowledge (because we know) but one sort of Domestick hony gathering Bee: Some indeed live in woods, as wild, others in hives, as more familiar and milde; but these interchangeably shift their habitations: And I question not, but the wilder (because more remote from the company of men) by familiarity will prove as gentle as any.

Aristot. de Hist. lib. 9. c. 19.

Aristotle commends a little round Bee in the first place, and in the

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the next that which is somewhat long, and in shape (not colour) like a wasp. But (as I said) wee have in these parts of Europe, but one sort of domestick Bee. And yet *Pliny*, *Varro*, *Columella*; and in a word, all receive this distribution of Bees from him; And which is more, hee confounds the Drone into two sorts, a Thief and a Drone; which *Scaliger* reconcileth well thus, that by the Theef is to bee understood that which others call a Drone.

Varro citing *Menecrates* tells us of three kindes of Bees, one black, a second red, a third party-coloured, which hee commeads for the best. Varro de re rust. lib. 3.

In all the Islands of the *Moluccas* their hony is made of certain Flies lesse than Ants. It is a report not confirmed by any, but supposing it true, the Bees (not Flies) were small, like unto the *American* Bees, and the Ants great, such as are in some parts of the *Indies* greater than our Flies. Pigafetta.

Moreover, there is some difference in the bigness of Bees, but it is accidental, for they that are loaded (especially with water or honey) seem greater and longer than those that are empty. The Nymphs also when they come first abroad are not grown to the full bigness, which afterwards they have; and the old ones do wither and become little again.

Likewise in these three Ages their colours also do vary; for in their middle age they are brown, whereas before they are more pale, and at the last they grow grey, or whitish again, but these are differences of Bees in the same hive, and not of one hive from another, since these divers sorts are in every Hive.

The report is, That all Bees were at first of an Iron colour, but for feeding of *Jupiter*, had this reward bestowed on them to bee changed into a golden colour. But not to insist upon Fables. Natal. Com. Mythiolog. lib. 2.

In some Countries there bee white Bees, *Aristotle* saith, in *Pontus*. Many such are in *America*, not because they are thinner, or of a more transparent substance, or feed more finely as some, rather they are a fainter and feebler kinde of Bees, for white is a penurious colour, and where moysture is scant, so blew Violets, and other flowers, if they bee starved, turn pale and white. Some assign this as a cause of colours, the excremen- L. Verulam Silva Silvarum cent. 1. 5.

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mentitious moysture, which as it passeth through a courser, or more fine, and delicate strainer, so are the colours brighter or darker. Others, Bees are not therefore brown or black, because their thin substance is easily dried, and that which is burnt and moist as a coal becomes black. Nor are Bees of one colour more than Wasps, because they feed of fewer sorts of food, than Wasps: For colours are disposed unto all things by the great Creator, of which no more certain reason can bee given, then why some men are Negroes, others are not.

Card. de varietat rer. c. 28.

Arist. de gen. animal. l. 5. c. 6

Now Negroes are not black by reason of their feed, this is confuted by *Aristotle*; nor yet by the heat of the clymate, for this is confuted by experience, in that Countries as hot, produce of a different colour, who can certainly shew why about the *Magellanique-Straits* they are so white? about the *Cape de Buon Speranza*, when as in the *East-Indian* Isle, *Zeilan*, and the Coast of *Malabar*, they are black both in the same parallel.

Seldens illustrat. on Dray t. Polyalbion, 1. song.

Nor of the soyl as some have supposed, for neither haply will other races in that soyl prove black, nor that race in other soyles grow to bee better complexioned; but rather upon the curse of *Noah* upon *Cham*, or the posterity of *Chus*. But of this can wee bee no more assured of than the former; for *Chus* inhabited a part of *Mesopotamia* watred by *Gyon*, a river of Paradise, and one of the branches of *Euphrates*.

Onesicritus apud Strabon. l. 15.

Sands Relat. lib. 2.

Some leaving the hot impressions in the aire, attribute it to the drinesse of the earth, as though the *Libyan* Desarts were not more dry (and yet the people no Negroes) than many parts of *Africa*, where they are all blacks.

Some ascend above the Moon to call some heavenly constellation and influence into this Consistory of nature, and there will I leave them; yea, I will send them further, to him that hath reserved many secrets of nature to himself, and hath willed us to content our selves with things revealed: As for secret things both in heaven and earth, they belong to the Lord our God, whose holy Name be blessed for ever, for that hee hath revealed to us things most necessary both for soul and body in the things of this life, and that which is to come.

CHAP.

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CHAP. V.

Bees nature and properties.

BEES are neither absolutely wilde, nor altogether tame creatures, but of a middle nature between both. Some Bees are not (as some conceit) ignorant or negligent in gathering honey, and framing their combs, but yet serviceable in meaner imployments (as fetching water, watching, and warding) but all are naturally skilfull in all their proper labours, and interchangeably perform them. Their sting is more often the cause of their ruine, than instrumental for their relief; for loosing it (which they alwayes do when they sting) they unavoydably lose their lives; but with the fear of it they often chase away timorous persons from their Hives.

Some fancy that the cause of their humming noyse while they flye, is, least they should bee deprehended for theeves; whereas the robbing Bee, or theef, boldly discovers his purpose, as soon as hee comes near the hive which hee intends to assault, with a loud threatning noyse, proclaiming their destruction, if they shall resist, and not willingly permit their goods to bee plundered, endeavouring by fear to betray the courage that self-preservation should arm them with.

That some Bees stay at home to receive the labours of those that go to work (as *Aristotle* delivers) is but a fable; hee saith the Bees returning from their labour, shake themselves, and three or four attend and follow, and ease them of their burden. *Arist. in hist. Anim. l. 9. c. 40.*

That they carry in a windy season little stones to poise themselves, is a false relation; yet in a storm they will help themselves by flying under the Lee-side of an hedge, or encompassing a high and hilly place (if there bee any) and so as it were by making a board (as Sea-men speak) take the advantage of the wind. But if it bee a plain Champaign Country, where evasions avail nothing; then if the wind blow strong against them, they flye low, and almost close to the ground, and rest often.

Aristotle saith, The smaller Bees are more industrious than

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the greater; his reason is, their wings are worn and jagged, their colour black, and their backs bowing, when saith hee, the greater are smooth and beautiful (like idle women) when indeed they are originally of one magnitude, but growing old, their bodies, are small thin, and grey, and their wings torn and tattered, a certain symptome of an approaching death, whereas the others beauty, and lustinesse is a Crysis of their youth, not their idlenesse.

In the morning they are husht and still, saith *Aristotle*, untill one (surely the Master of the watch) with two or three loud buzzings calls them all up as it were to work: But no such exciting sound could I ever hear; nay I am confident there is none at all. But some such like thing is practised by the Apes which some have transferred to the Bees.

Capt. Jobsons Colden trade. Near the River *Gembra* in *Africa*, and in many other places it is certain, that the Apes gather together towards night, some hundreds in a company, and in the trees (especially near the Rivers side) dance their *Lavolita's*, and perform many strange Garbo les; but about the setting of the Sun, one of the company (called by the English Mr. Constable) with two or three loud voyces ceaseth all their disports, and after that they continue quiet and silent untill the next morning when by a like voyce they have liberty given them to play and recreate themselves.

When the Bees likewise return from work, they are (as *Aristo le*, and others) a while in a tumultuous hurly burly, and then by degrees make less noise, and less, untill one flying about gives notice as it were that they must all to sleep; but it is nothing so, for in full Hives in the latter part of the Spring, and in the heat of Summer, they make a great buzzing sound all night. Bees live in a Martial discipline like Souldiers in a Garrison, some alwaies watching and warding, understand it of the Summer season, when the chilling cold, or nipping frost doth not force them into their Hives: yet in the day time they continue it longer.

A hot Sun-shine or warmer aire (even in Winter) will quickly prompt them out of their Hives to take a short vagary near their stalls, but if the cold bee intense, they are quiescent, if not dormant.

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Bees are indefatigably, that I say not covetously laborious, alwayes working, but never satisfied, alwayes toyling, but never coming to a period of their endeavours, still progressive, never at their journies end, being impossible to bee stinted, and the longer they work, the more earnest they are, and impatient of delayes, or loyterings, while there is matter to work upon in the fields, and the weather is seasonable. Nay if the flowers decay and grow scanty; The Stocks that have enough, and to spare, will to keep themselves doing, rob from their neighbours.

For every Hive, or Commonwealth, endeavours to bee a Non-such, and to engross all within its own circumference, and by any means to make it self the increasing figure, though toyl, and restlesness continually attend it.

They are not offended with red coloured cloaths as some affirm, nor yet inebriated with sweet ointments, no nor much offended with stinking savours: I have known twenty Hives together stand against a dunghil divers years, and thrive and prosper well, yet would I not perswade any to set them in such a place if bee can provide another.

They express not more love to their keepers than strangers, but they being used to them with greater confidence venture among them, which some (more fearful) beholding fancie, that the Bees respect and love them more than strangers; whereas would they boldly come among them, nay take them in their hands, and carry themselves peaceably towards them (except when they bee irritated and offended before) they should finde all love and favour from them. They feed not on any flesh, nor need *Pythagoras* cavears for that purpose.

That some Bees gather not honey, but water for the King, and his guard, is a meer fable, for they mutually perform all imployments. Ælian lib. 1. cap. 10.

That there is such an order that the elder Bees should have a proper place in every Hive, and the younger another, peculiar to themselves, is (as most of the opinions of the Ancients) a fabulous narration, for they are all promiscuously mixed together.

Bees (as many other Insects) have neither visible bones, nor Cartilages, nor Nerves, nor fat, nor flesh, nor a brittle shell,

as some land, and Sea-creatures have, nor that which may bee properly called a skin, but a body of a certain middle nature between all these like to a dry Nerve, but far softer.

Their body is divided into three principal parts, and there is motion in every part severed one from another, so that whatsoever is the reason of their life, it is not fixed to any one member, but in the whole, and therefore *Pliny* was deceived, who accords in the former, but denies that Insects, and therefore Bees have any symptome of life by motion in the head, except it bee cut off with the breast. *Aristotle* taught him this lesson, which without trial hee took upon trust (as many more.) And *Scaliger* also after him, and is not content to entertain an errour, but insolently insults over *Galen*, for placing the chief residency of the soul in the brain.

Arist. de hist. Animal l. 4. c. 6.

Scalig. com in loc.

It is true, that the heads of Eeles and Snakes cut off, live not long, when as the body lives a great while; nay a speedy way to kill an Eele, is to peirce her through the middle of her tail. Upon dissection I have found that onely the head being cut off, the horns, the chaps, and the tongue also will stir, and that a great while after the separation from the body. Now the reason hereof may bee this, Bees have the spirits diffused, almost all over, and therefore they move in their several peeces, whereas men and beasts move very little time after their heads are off: And therefore it is certain, that the immediate cause of death, is the resolution or extinguishment of the spirits, and that the destruction or corruption of the Organs, is but the mediate cause; but some Organs are so peremptorily necessary, that the extinguishment of the spirits doth speedily follow, but yet so, as there is an interim of a small time; but for Worms and Bees the spirits are diffused almost all over, and therefore they move in their several peeces.

L. Verul. cent. 4. exp.

Jo. Leo.

Further to illustrate this, *John Leo*, reports that men condemned to suffer death in *Egypt*, have lived a quarter of an hour, divided asunder set upon a heated Caldron, sprinkled with unslaked lime, and understood, and given answers.

Card. de subtil l. 9

A living creature is sensible in every part, so that it can exercise it in regard of heat, and can also perform in every office that the organ, or instrument for that office is remaining; and hence are determined many controversies.

Some

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Some query whether a living creature can subsist without the head, others whether without the heart? Without the head they are not sensible, but live; without the heart they are sensible, but the heat quickly decayes, and motion, and life also.

Bees revive easily when they seem dead, being brought to the Sun or fire; the cause whereof is (as before) the diffusion of the vital spirits, and the ease dilating of them by a little heat; they stir therefore a good while after their heads are off, and that they bee cut in peeces, which (as before) is caused for that their vital spirits are more diffused throughout all their parts, and less confined to organs, than perfect creatures. L. Verul. Silva Sil. cent. 7. 697.

Augustine mentions the same with astonishment and wonder, supposing that no reason can bee rendred for it, but that it is a secret work of God, lest one soul should seem to bee divided into so many parts. *Aristotle* saith, that Insects are most like plants, because they have many beginnings in their essence, for as plants cut in peeces live, so Insects for a time, but plants more fully. August. lib. de quantit. anim. c. 3. Aristot. de partib. animal. lib. 4. c. 6

Bees when they flye lift themselves up; thus they do when they arise from the Hive, but they can flye forth-right, without any visible elevation of themselves. *Aldromandus* would give a reason for it, because, saith hee, they want a taile, and therefore continue not long in the aire. But this by experience is found to bee otherwise, and birds that have long tailes, yet have a jumping motion in their flight, as the Wagtaile. Arist. de hist. anim. l. 4. c. 9

When the Hives are full of Bees, and well supplied with meat, neither moths, nor any other hurtful creature can much endanger them; but when they are few and weak, they easily miscarry by every adversary; so that it is not a signe of a better sort of Bee, as *Aristotle* delivers, but onely of want of numbers or strength, when they neglect their own preservation, which sometimes they having formerly endeavoured, and finding their labours frustrate, they grow desperate and careless; but though in number they bee but few, and therefore their dangers many; their provision little, and therefore their fare poor and pinching, yet will they not forsake their own Commonwealth to communicate of the wealth or strength of others, but without repining rest contented, yet by diligence endeavouring to improve

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prove their store and numbers. But when they are so few that they cannot thrive alone, they will with a general consent (except their Generals, to whom such a resolution is deadly) sometimes joyn themselves to another Hive, but alwayes with hazard, often with destruction.

Bees delight to play abroad before the Hive, flying in and out as thick as if they were fighting or swarming, in breeding time, once a day usually, if it bee fair weather, and ordinarily at a set time, each Hive observing the same hour of the day if it bee fair; and then they will expatiate and dance the Hay in circling motions, and surrounding Vagaries; and at other times when they have been long shut up with cold, or closer weather, the first fair day they will thus abroad both to recreate themselves, and also to ease their bodies, for they evacuate for the most part flying.

CHAP. VI.

Bees Politicks, Ethicks, and Economicks.

ONe drop of water hath no power, one spark of fire is not strong, but the gathering together of waters called Seas, and the communion of many flames do make both raging and invincible elements. And *una Apis, nulla Apis*, one Bee is no Bee, but a multitude, a swarm of Bees uniting their forces together, is very profitable, very comfortable, very terrible, profitable to their owners, comfortable to themselves, terrible to their enemies.

Bees are political creatures, and destinate all their actions to one common end; they have one common habitation, one common work, all work for all, and one common care and love towards all their young, and that under one Commander, who is not an elected Governour; for the vulgar often want judgement, raising the worst and wickedest to the Throne; nor hath hee his power by lot, for the chances of lots are absurd, and ridiculous, conferring command often upon the meanest: Nor is hee by hereditary succession placed in the Throne; for often through pleasures and flatteries are they rude and ignorant of

Basil. Concio in Gordium Martyr. & Hexamer. homil. 8.

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of true vertue, but by nature hath hee the Sovereignty over all, excelling all in goodlineſs, and goodneſs, in mildneſs, and majeſty.

They have all the ſame common laws, and with common care, obſerve them all, and have one common bond, not to have any thing lawful for one, which is not lawful for another; but whatſoever is lawful, is lawful for all. And they have one common reſpect, and reverence to their Commander by whoſe counſel their Commonwealth is governed; a common houſe, a common care of poſterity, common labour, common food, common generation, a common uſe and fruition of all things. Ambroſ. Heram. l. 5. c. 21.

A Bee, like a man cannot live alone, if ſhee be alone, ſhee dies: As in the Fable of *Menenius Agrippa*, the whole body ſoon periſhed, when the reſt of the members to eaſe themſelves wronged the belly; ſo the whole Commonwealth of Bees will quickly bee diſſolved if they labour, each Bee for her ſelf, and neglect the publick. Nay the Drones, though they bee idle, yet are uſefull inſtruments for the good, and preſervation of the Commonwealth. J. Strobeus Iam. nuptiar. p. 67.

The Polity of Bees is admirable and imitable: *Plato* and *Cicero* after a divers manner preſcribed the form of a Commonwealth, one how it ought to bee, the other how it was of old, but both lay down this as a maxime, that a civil life ſhould imitate nature which is the beſt inſtructer. But what is Natures leſſon, the irrational creatures beſt expreſs, and chiefly Bees, and therefore *Plutarch* ſends his *Trajane* to *Virgil*, that hee might borrow a civil life from the Bees. For a civil man by natures rule is alwayes chiefe of the City, as the Commander among the Bees. Plutarch. reip. gerend. precep.

And again, hee ſaith, Bees conſerve community unto their laſt; for no man ever ſaw a Bee degenerate into a Drone, which ſome require of Civil Governours, that the vigour of their age being paſt, they ſhould live idle at home. Great ſpirits degenerate not. Plutarch. an ſeni ſit geren. reſp.

They expreſs if not great reverence, yet I am ſure great love to their Commander, without whom they will bee, they will do nothing, and with whom they will bee any thing, go any whither, ſtay any where, bee content with any thing. Pet. Matthew continuat. Gen h ſt. of France.

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The Poet elegantly thus writes,

Virgil. Georg. l. 4.

Besides not Egypt, *nor rich* Lydia *more,*
Nor Medes, *nor* Parthians *do their King adore;*
Whilst hee's alive in concord all obey,
But when hee dyes, all leagues are broke, and they
Themselves destroy their gathered food at home,
And rend the fabrick of their Honey-combe;
'Tis hee preserves their works, him all admire,
And guard his person with a strong desire:
They carry him, for him they hazzard death,
And think in War they nobly lose their breath.

Polyæn.

Xantippus therefore the *Lacedemonian* being General of the *Carthaginians*, said, Hee had rather serve under the Commander of the Bees, than lead an army of Ants. I say, under the Commander of the Bees, who useth not his sting, that is, exerciseth tyranny against none, and orders nothing but that which is profitable for the Commonwealth; when as they that lead an army of Pismires, that is, men who neither will, nor know how to obey, never perform any thing notable, and praise-worthy; so that aptly *Homer* describing the *Greeks*, hastening to the Oration of *Agamemnon* the General of the whole Army; and as hee calls him the Pastor of the people, compares them to Bees swiftly flying with their labours to the Hive; where their Commander is constantly resident.

Homer l. 2. Iliad.

Aldrovand. de insectis lib. 1. Cælii Calcag. Apol. pro Alfonso duce Ferrar. Cornucop. Pyr. Perotti. & Petr. Crinitus de honest. disc plin.

The *Egyptians* on this ground placed on the top of the Kings Scepter the bird *Cucuphus* (which is a Stork) with a River-horse underneath it, implying that piety must suppress impiety, clemency ferity. And from hence the Tribunes of the Souldiers among the *Romans* carried their swords without edges, intimating that the Generals of Armies ought not to kill the Souldiers, but to correct them, as the Commander of the Bees doth her subjects; and perhaps on this ground, the *Egyptians* by the Hieroglyphick of a Bee signified a King, because it becomes a Commander of a people, to mingle with the sting of justice the honey of clemency.

Memorable to this purpose was the practise of a certain King of *France*, who having conquered the *Insubrians*, and entred

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entred their City, by a symbole or type thus expreſt his clemency, wearing a coat full of Images or pictures of Bees, and this Motto written upon it, *Rex mucrone caret*, the King wants or useth not his sting. Baptist Mantuan in exhort ad Insub.

Their Ethicks and Economicks appear in many particulars. They make frugality the basis of their subsistance, and therefore as they laboriously gather store of honey they shut up the Cells still as they fill them, and untill Winter come, will not open them, but live in the mean time of Bee-bread, and such provision, as they get abroad, lest if they should prodigally waste while they may work, they might after starve when they cannot work. And in the pleasures of this life they are so moderate, that perfect temperance seems to rest onely in them.

They are neat and cleanly creatures, never suffering any filth or excrements long in the Hive, emptying themselves always abroad. And if in the Winter while they are weak, and not able to indure the colder aire, filth bee contracted, yet as soon as the Spring comes, and they grow numerous, and strong, they diligently cleanse their Hives, and carry out all.

Their cleanliness also thus appears, That they will not suffer their dead to continue long in the Hive, but carry them forth to burial.

Their chastity is admirable, for whereas many other creatures couple together openly; Waspes also and Humble-bees, and many sorts of wilde Bees scarce specifically differing from them, yet whatsoever the Bees do in *Venus* service they act in secret, and far remote from the eyes and knowledge of all men.

The Poets say, That this is the reason of it. *Saturn* the husband of *Ops*, and father of *Jupiter*, was wont to devoure his own children when they were brought forth (the reason of it was, because *Saturn* was named the god of time, and all times passing and returning, revolve again into themselves) which gave occasion to this history; when *Jupiter* was born his mother *Ops* fearing the cruelty of her husband to him, concealed his birth, and the *Cretans* for fear that *Saturn* should hear the childe cry, rung their brazen pans and kettles, which noise the Bees following, came to the place where the Infant was,

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and fed him there with honey. *Jupiter* for so great a benefit, bestowed on his Nurses for a reward, this admirable gift, that they should have young ones, and continue their kinde without wasting themselves in Venery.

Mr. May Annotat. on Virg. Georg.

Others report that *Jupiter* being much in love with a faire Nymph called *Melissa* turned her into a Bee, and for her sake bestowed this, and other priviledges on the Bees.

And they are not less valiant than chaste, though industry and diligence may do much with all other creatures, yet little with these, no not to palliate their fierceness, let them bee exasperated near their Hives, you may as easily binde a Lion with a single hair, as by opposition and resistance, compose and quiet them, though the creature is but little, yet *virtus non minima*. Is it not strange to behold such a little Insect to contend with the most mighty, to see such vigour in a creature without bones or scales, or hard defences, and yet to bee offensive to, nay prevalent over the most strong, and powerfull creatures!

Mr. Buller Femin. Monar. cap. 1.

In valour therefore, and magnanimity they surpass all creatures, there is nothing so huge and mighty that they fear to set upon, and when they have once begun, they are invincible; for nothing can make them yeeld but death; so great hearts do they carry in so little bodies.

In private wrongs and injuries done to their persons (for which cause men will soonest quarrel) they are very patient, but in defence of their Princess and Commonwealth, they do most readily enter the field,

Virg.

--- For them they hazzard death,
And think in War they nobly lose their breath.

Their War whatsoever some say to the contrary, is onely forreign, for though in the same Hive, by a violent or accidental congression of two swarmes, there bee sometimes a deadly contest, and bickering, yet still it is forreigne, for they were never united under one Commander.

Mouffet Theatrum Insect.

They never fight (whatsoever some unexperienced Observers report) for food, nor fall out among themselves for meat, but alike communicate of all they have (though but little) and when

when it is spent (if it bee no gathering season) starve altogether.

Their Geometry appears in the fabrick of their combes; and their Astronomy in the knowledge of the weather, for they fore-know and presage windes and storms, and either keep themselves in their Hives, or go not far, perhaps fetch water, and quickly return.

When they flye not far from the Hive, but flye about it, the weather being serene and fair, it is an usual token of an approaching storm, or tempest, *Aratus* prompted him (if not experience) with this observation. Theophrast. l. 1. de sig. tempestat.

But above all, one excellent skill they have, which the most experienced females, though they much desire it, must yeeld themselves to want; for they know certainly when they breed a male, and when a female, which appears by this, that they lay their Cephen-seeds in a wide comb by themselves, and the Nymph-seeds in the rest, which are of a smaller size.

In their own Commonwealth they are most just, not the least wrong or injury is offered among them: but I cannot commend their justice towards strangers, for all that they can catch is their own, unless they may bee excused in this respect, that the Bees of divers Hives are at deadly feud, or rather as Kingdomes that are at difference one with another.

If Bees, creatures without reason, have such Prudence, Providence, Fortitude, Chastity, Loyalty, Natural affection, such Government, Order, Discipline; How much rather ought men to express the same in their carriages and conversations. If they abhorre Intemperance, Lust, Sloath, Rebellion, Cowardise, shall men practise them? They are then worse than Brutes, and deserve rather to bear the names of savage Monsters, than of civil and reasonable men.

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CHAP. VII.

Of their Senses.

CReatures produced of putrefaction are little, and weak in the senses; defective in their exteriors, much more in their interiors; yea they altogether want wisdome, and are stupid. And therefore Bees are prudent, because they are generated of a certain matter, and not without a parent.

Cardan. de subtil. l. 9. Plin. Nat. Hist. l. 11. c. 10. Arist. de Hist. animal. l. 4. Scalig. com. in Arist. de hist. an. l. 4. c. 7.

Bees have all the five senses, though there do not appear all those outward Organs of senting, which some other Animals have: And so likewise Fishes have no visible Organ of hearing and smelling; and yet hear and smell, there is not seen perfectly in their heads a brain, yet is it the beginning fountain and seat of all these senses, phantasie, and memory.

Of all the five senses their sight seems weakest, yet is it clear, especially afar off, which guides them abroad, and directs them home, though sometimes they are three or four miles from their Hives.

But their sight is not so quick near hand; for sometimes they will flye against you, if you come suddenly cross them when they are laden; and also near the mouth of the Hive, if they light besides the door, they will run up and down seeking for it, as if they were in the dark (hereby verifying this truth, That things nearest the eye are furthest from sight) but then up they rise, and flying back a little way, turn again with a better view.

Mr. Butler Feminine Monarch.

As many as fall besides the stool when it waxeth dark, ten to one but they lye abroad all night; yea if at such times being troubled by any thing, they come forth out of the Hive, although they bee fresh and lusty, they will leap up and down, run, and flye to and fro, untill they bee weary, but by no means can they finde the way in again.

And therefore it is, that when they flye abroad they take much pains at the door in rubbing, and wiping their horney eyes, that they may better discern their way forth, and back again.

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It is said by some of the Ancients, that Insects have onely the sense of feeling, which is manifestly untrue, for if they go forth right to a place they must needs see.

Their smelling is quick and excellent, for they will scent honey a mile from their Hives, and make haste to it, and when they flye aloft in the aire by it, scent any flowry Mead or Heath near them.

As soon as the hony-dew is fallen, they presently scent it, although the Oaks that receive it bee afar off; which the Poet (speaking of the excellency of this creature in this sense) thus expresseth,

---- Ideoque per auras
Mellis apes quam longe ducuntur odore. Lucret. l. 4.

Their feeling is as active as their other senses, nay more, for it is most individuate, it inheres in the subsistente of the creature, and cannot bee separated, or taken away without the detriment, or utter decay rather of the subject wherein it is. It may therefore bee called the living sense, although in divers diseases and occurrences also oft-time befalling the subject wherein it is, it may be deprived of it. As we read of *Athenagoras* of *Argos*, who never felt any pain when hee was stung by a Scorpion. Mr. Brathwayt Third Essay of Touching.

Their feeling is so quick, that if you do touch a Hive very softly, or knock upon the ground near the stool, they presently resent it, making a general murmure, and many of them coming out of the hive door, as it were to examine the cause.

And for their taste, this is evidently as active as their other senses; thereby they make choice of waters, and all other gatherings for their use and purpose.

And lastly, for their hearing, that also is good, though *Aristotle* doubts of it, nay denies it. *Gardan* saith, That Bees, because they are so small creatures, cannot hear and see too, but being flying creatures, there is a necessity of seeing, and therefore an impossibility of hearing; but hee contradicts himself, when hee tells us, though untruly, that every morning (all being yet silent if not asleep) one (the Constable sure, or tarum the Master of the Watch) by two or three Bombes or shrill sounds like a Trumpet, calls them all up to their work; and so Arist. de hist. an. l. 9. c. 40. Metaph. l. 1. c. 1. Card. de subtil. l. 9. Idem de varie-

like-

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likewise in the evening; flying about the Hive, with a small humming murmure commands them to sleep.

But if Bees hear not, to what purpose is the calling before they swarm, and also their encouragements in fight,---

Virgil. --- *And then a voyce*
Is heard resembling Trumpets winding noise.

Scalig. Comment. in Arist. de Hist. animal. l. 9. c. 64. And *Scaliger* acknowledgeth against *Aristotle*, that they hear *signa enim dant intus, alia atque alia etiam foris, mutato murmure.*

But in a word, further to manifest that they hear: If a swarm rise, and the Queen Bee miscarry, and fall by the way (as it oft happens) her company notwithstanding will light, expecting her coming. But being hived, they presently miss her; and with a mournful murmure bewail their condition. Some run up and down distractedly within the Hive, others without; and by and by making a sudden stop, fall into a passion of mourning, and then run up and down again; and then mourn again, but in the mean time they send many to seek for her. I have often found her where shee hath been fallen, and taking her up, carried her to the Hive, where I have observed (not without admiration) how that at her first coming they have in a moment changed their former note and carriage, and with clapping of their wings, and a rejoycing murmure congratulated her presence; and those that were seeking about for her, although some rods distant from the Hive, in an instant, as it were, returned all home, and with a rejoycing gratulation welcomed their Queen. And therefore they have hearing, which shews likewise, that though their spirits bee diffused, yet is there a seat of their senses in their head.

L. Verulam. Silva. silvar. cent. 7. 698.

And as they have the outward senses, so have they the inward also, else could they not bee wise and prudent; understand wisdome or prudence equivocal, so called by reason of the resemblance it hath with true wisdome or prudence, being able to finde out, and to manage convenient means unto natural and self-ends.

F. Picolomin. universa phil. de moribus.

Vertue is not taken or understood one, but many wayes, sometimes for the shadow, and a slight or light resemblance thereof, in which signification Bees are called prudent, whereas prudence properly so called, belongs not to them.

Bees

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Bees have memory, which is not a sense or imagination, or understanding, but a disposition or habit of any one of them, when the time also is joyned, or added to it, wherein the impression is made, and the vision is left in the minde; whence this is a consequence, those creatures have memory, which have sense and understanding of time, for wee remember onely in the sensual part of the minde; for if a horse hath been mired in a slough, when hee meets with the place again, hee will presently remember that hee was there mired. Cælius Rhod. Lect. Antiq. lib. 20. cap. 3.

And herein Brutes differ from men, That a reasonable creature doth not onely remember that hee hath seen, or heard, but also differenceth the spaces of the present time, from the time past; but Brutes onely know thus much, that they have fallen (into a pit, or other dangerous place) at this present, or sometimes formerly.

Again, a man observes that hee remembers, which irrational creatures do not. And among all living creatures they have the best memory, which have the most clear, pure, and perfect imagination, of which sort are Bees and Pidgeons.

As some creatures besides sense, have memory, and natural prudence, so some go further, for they are disciplinable; but none have experience, or very little.

Now by sense wee are to understand that sensitive knowledge which is onely in the presence of the object, whether it bee by the internal senses, or by the outward common sense or phantasie: For under the name of sense, the Philosopher comprehends whatsoever is necessary to perceive or understand in the presence of the object, but there is necessary in all, somewhat of the phantasie or imagination, to understand even that which is without. And therefore it is common to all brutes, as to understand, so also to have imagination; but memory addes an inward strength, and power of conserving the species and using them in the absence of the objects, that by this means any thing may remember those things which it takes in the sense, even then when they are not present, in regard of the externall senses.

This faculty, saith *Aristotle*, some creatures have, but not all, but yet hee declares not what creatures have, or what want it. They are commonly thought to have memory, which

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may properly and perfectly bee moved from one place to a more remote, either by a progressive motion on the land, or flying through the aire, or swiming in the waters, for memory seems for this purpose to bee given to creatures, that they may bee removed to a distant place, either to avoid that which is nocive and prejudicial, or to finde that which is useful, which they have any wayes made trial of.

Further, some creatures, saith *Aristotle*, with memory, have prudence, which (as wee said before) is not to bee understood properly but metaphorically, for they use not discourse, nor acquire a habit, whereby they may judge of what they are to do; but oftentimes so act by a natural instinct, and so provide for the future, as if they had reason indeed, and therefore by a figure are called prudent.

And this prudence of Brutes is a special sagacity in some, which by the instinct of nature, are so ordered as that they seem to imitate the reason and prudence of men; but all brutes have not this prudence, but those creatures that have it, are so perfect, that they have all of them memory.

And wee may adde further, that this natural sagacity, then chiefly merits the name of prudence when it is trained up, and perfected by the memory of former things.

Some creatures have not onely memory, but are also disciplinable, but others are not: Of this last ranke are those, which though they have memory, want the sense of hearing, for hearing is the sense of discipline; for wee see many creatures, dogs, and horses, act by external signes, but never without a co-operation of hearing, whereby they are called and stirred up to understand the signes.

Arist. Metaph. lib. 1. cap. 1.

Now *Aristotle* sets down an example in Bees which hee supposed not to hear. But *Pliny*, *Scaliger*, and many others affirme the contrary, and by good arguments prove their Assertion.

Albertus willing to salve the Philosophers credit, invented this distinction. There is, saith hee, a hearing of a sound, as so, or of a voyce, as it is an articulate sound, now Bees hear in the former way, not in the latter; but this latter hearing, saith hee, is necessary to make a creature disciplinable; but whether many disciplinable creatures so hear, might bear a great question; for

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for although when they hear such words or sounds, they come, or flye down, or speak after the fashion of men, yet are all these things done by a natural instinct (supposing memory, and the experience of such a sign, or voice.) And therefore *Suarez* faith well, It were better to say all creatures which are disciplinable, have hearing, and perhaps sight, memory, and a metaphorical prudence or sagacity. But to leave these nicer disputes, (as perhaps by some supposed) impertinent to our present Discourse. Fr. Suarez Metaph. disp. 1.

CHAP. VIII.

Of the Queen-Bee.

THe Queen-Bee is a faire and stately creature, longer by the half, and much bigger than a common Honey-Bee, yet not so big as a Drone, but somewhat longer. She differs from the Common-Bee both in shape and colour; her back is all over of a bright brown, her belly even from the top of her fangs, to the tip of her train, is clear, beautifull, and of a sad yellow, somewhat deeper than the richest gold: Her head is more round than the little Bees, by reason her fangs bee shorter, her tongue is not half so long as theirs; and thereby nature hath disabled her for working, for it is impossible for her short tongue to extract much out of any flower, were shee never so industrious.

Her wings are of the same size with an ordinary Bees, and therefore in respect of her long body, they seem very short, resembling rather a cloak than a gown, for they reach but to the middle of her train, or nether part. Shee hath streighter, and stronger legs and thighs than a Honey Bee, which are of the colour of their belly, but her two hind-legs more yellow. Shee hath a lofty pace and countenance expressing Majesty: That shee hath a white spot in her fore-head glistering like a Diadem, I never saw, though it bee frequently reported: Nay I am sure of the contrary.

Her nether part is much longer than her upper part, and more sharp than any ordinary Bees, having in it four ringles or

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partitions, and in each ringle a golden bar in ſtead of thoſe three whitiſh rings, which other Bees have at their three partitions. The ſpear or ſting ſhee hath is but little, and not half ſo long as the other Bees, which like a Kings ſword, is rather born for ſhew and authority, than any other uſe. I beleeve they cannot uſe their ſting, for I have provoked and forced them to ſting by hard holding of them, and putting their taile to my bare hand, but could never perceive them willing to put it forth. Nay when I have forced it out yet ſhee would not enter it in my hand.

In a word, the Queen Bee in her whole ſhape and colour, is a goodly and beautiful creature.

—Velut inter ignes,
Luna minores.

As the Moon when in a clear night, ſhee fills her circle, is more and more eminently beautiful than all the leſſer ſtars, ſo is the Queen Bee among the other Bees.

There are not two ſorts of Kings, or Queens in any Hive, as *Ariſtotle*, and after him *Pliny*; and the moſt have delivered, but onely one, and though a King in place and power, yet is in ſex a female, *Vocantur ab aliquibus matres quaſi quæ pariant.*

Ariſt. de hiſt. Animal. lib 5. cap. 19.

That two ſeveral Queens or divers companies ſhould agree in the ſame Hive, though divided in their works, and neither intrench on the others ſubjects and labours, although the Ancients very confidently deliver it, yet it is a meer fable*. Many Kings in a Hive, but falſly: As *Ariſtotle* makes two kindes of Kings, or Queens, ſo in every Hive hee would have at once ſeveral Kings, for although one bee enough for government, yet not for generation, ſaith *Scaliger*, ſuppoſing with *Ariſtotle*, that they were inſtrumental, as the males, for the generation of Bees.

* Mr. Googe 4. Book in Treat. of Bees.

Ariſt. de hiſt. Animal. lib. 5. cap. 19. Scalig. Comment. in loc.

The Queens cells wherein ſhee breeds, are not uſually in the bottome, or under the combs, but on the edges, ſome on the outſide, ſome more inward in the middle of the combs.

And they often exceed *Ariſtotles* number, who determines them

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them to bee six or seven, whereas in some hives there are not so many, in others nine or ten. Arist. de hist. Anim. lib. 5. cap. 19.

It is a Chymerical fable that some have asserted, that the Bees first build their Commanders houses in the most eminent part of the combes, more large and beautiful than their own, and of the purest wax, and then inclose it with a waxen wall from the rest. Whereas indeed neither Commander, nor subjects have any particular habitations, for they live and lye between the combs, and the hexangle cells are repositaries for food, and nurseries for generation; and the orbicular cells are breeding places for the Royal issue.

And yet *Aldrovandus* delivers it as a received and ancient truth that the Queen Bees cells are made in a more eminent part of the hive, very large, invironed with a fence, or wall, for an emblem of their greatness. Andro. de Insect. l. 1.

And as in conditions they are of three sorts, so they make a triple division of their cells; those neareſt to the Queens Pallace, for the most ancient inhabitants, as the Queens guard, and next to those the younger, and such as are not yet a year old; but to the middle sort as the most strong and lusty are committed the extremities. This is a fancy also.

The materials for the Queens generation are yellow; and there is not first a worm, but presently a Bee, *ut aiunt*, saith *Aristotle*. And *Higinius* as hee is cited by *Columella*, saith, the Commander is not procreated of a worm as other Bees, but in larger cells than the Honey-Bees, are found holes filled with a matter of a red colour, out of which the Queen Bees are bred, even at first with wings; so that it appears there was some glimmering light among the Ancients concerning the Queens generation, but dark and uncertain. Arist. de hist. Animal. l. 5. c. 22. Columel de re rust. l. 9.

Know thus much, that into those orbicular cells is injected a spermy matter thick like cream, but inclining to yellow, wherein and whereout the Queen Bee is bred, it being both matter of generation, and augmentation, for shee is at first (when shee is visibly any thing) a perfect Bee in lineaments and shape, though not in magnitude and dimensions, and seeds of that wherein shee is bred, until shee comes to her perfection.

The Bees never destroy the Nurseries, or breeding cells of the Queen Bee, as *Aristotle* delivers, and also *Pliny*, although after

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they intend to swarm no more, they kill all the Royal issue then in being (nay although they bee imperfect embrioes) to prevent a future distraction.

Hesichius. Before the Bees swarm, the Queen Bee by a peculiar and distinct voyce (*Hesiebius* calls it ζηγγον, which wee in English say *Sing*, for it is performed in a musical manner) some dayes before makes it known throughout all the Hive, that all may bee ready.

Ridiculous is the conceit of *Didimus* to pull off the extremities of the Queen Bees wings, that they may not flye away, for sometimes for recreation, and also for evacuation of their bodies, they use to go forth; and if their wings were cut would bee disabled to return.

I once had a good swarm likely to miscarry, the Queen Bees wings being accidentally torn, so that going out of the Hive, shee fell beside the stool, and could not get up again. And although once and again finding her before the Hive, I put her into it, yet afterwards shee went forth, and was lost. And almost all the Bees (in her loss) neglected their work, and began to pine away, untill I furnished them with a new Commander.

Ælian. lib. 5. cap. 12. The Queen Bee never voluntarily deserts her subjects, as *Ælian* and others intimate, affirming that the Bees diligently seek her out, and return her when shee hath fled away.

Oftentimes when a swarm goeth forth, the young Commander being weak, is not able to follow, but falls down, sometimes beside the stool, or sometimes further off, with whom some of the company will stay (such as being near her saw her fall) and encompassing her round will continue with her, except she bee taken up, and conveyed to the swarm or hive, untill they perish together. The Bees finde not their leader by the smell.

Ped. mexia de Bedæ axiomat. Philosoph. & Cantiprat. in bonum universale de apibus, lib. 1. c. 19. Many are confident that the Queen Bee never goeth off the hive, but with a swarm. *Cantipratanus* asserts this, but forgetting himself in the twentieth Chapter, hee saith, If her subjects bee weary with working, and cannot, or wander, and know not the way home again; the Queen Bee goes forth and findes them by their smell, and relieves them, and conducts them to the hive; but this is more fabulous than the former.

It

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It is more than probable, that the old Queen Bees, goforth sometimes with the latter swarm (whether out of curiosity, or wantonness, or indulgency, or dislike of her proper house, or love to her ancient subjects, I determine not) and this is the cause of the not thriving of many old stocks, after they have cast a second swarm; for although the Bees that are left, bee in a well repleni shed Hive, and therefore live out the Summer well, and work too, though not with that order and diligence as formerly, yet will they rarely breed, but by degrees consume away, and come to nothing. I have exactly viewed divers such stocks that I have taken, and could never finde a Queen Bee among them.

If therefore you perceive a hive, after it hath cast twice, to have some quantity of Bees, and yet to work negligently, or not to increase in the Spring, suspect them to want a Queen, and supply them with one as soon as you can, if no other way, by driving a poor swarm into them, for which purpose alwayes reserve some.

It hath been a constant tradition, that the Queen Bee hath a special guard alwayes waiting on her, and that when shee goeth forth, she is alwayes attended with them. I have often seen her to go forth, but alwayes without attendance. It may possibly fall out that some Bees may go abroad with her, and some others return when she comes back to the hive, but never as her special guard.

Mr. *Butler* saith, If the Queen Bee by her voyce bids them go, they swarm; this is warily to bee understood, namely of the latter swarm only; for the first is for ought I could ever finde out, at the will of the Commons; but there may bee a tacite consent of the Queen, but not solemnly by voyce, allowing their departure as in after swarms.

And again this is not alwayes true in second swarms, for after the Queen hath approved of their going forth, yet they will sometimes refuse, and manifest their dislike by massacring all the Infants of the Royal family.

I have observed some few Bees in the Spring in every good Hive, with crests, tufts, or tassels on their heads, some yellow, some murrey, in manner of a plume, some standing upright, some turning down, but in all other respects like other Honey-Bees.

Mr.

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Mr. *Butler* supposeth them subordinate governours and leaders, as Captains and Colonels: They are seldome seen but in May, and a little after; that they have any authority, or command over the rest, or special place about the Queen Bee, I beleeve not. This I am sure, I never saw any one of them attend her in her short progresses. Their working, I conceive wears off this ornament.

T. Cantiprat. bonum universale de apibus, lib. 1. cap. 14.

The Queen Bee goes first out with the swarm, say some: but it is not so, for she goeth almost last, sometimes indeed shee comes forth half an hour before the swarm riseth, with a great company which environ, and attend her on the stool; but her company moves not untill the greater part are passed out of the hive, and then those that environed her begin to arise, and shee with them.

Ælian lib 5. c. 15.

And as in the emission of a Colony, the Queen Bees go not before, neither are they carried at any time as some report.

Sometimes as I said, shee comes forth before, and stayes without; at other times shee comes first to the bottome of the stool, and perhaps out of the door, as it were chiding their slackness; but then when the swarm begins to arise, shee returns in untill the greater part bee come forth, when shee follows, and where they usually light, joynes her self to them.

Bees are governed by a Queen, which many hold not properly to come to the supremacy by succession, but by a judicious and prudent election, whereas it is most apparent, that the elder of the Blood-royal goes forth with the first swarm, and so the next in order with a second, although sometimes especially in castlings, or second swarms; some others venture forth. I have known eight go forth in one swarm, for they can but dye, going forth, and death is certain and inevitable if they stay. And a younger by dividing the swarm, or first getting the highest place of the Hive, may bee peaceably obeyed, with the destruction of all the rest.

Nay being necessitated, their own leader miscarrying in swarming, or by some accident afterwards, I have preserved the stock by putting to them a Queen Bee taken from another. And once, because I would bee sure, I pared off a little of one wing, and some months after, for experience sake, took the Hive

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Hive, where I found that Commander put in by mee, and no other Leader. So that though ordinarily the Queen Bee comes to her government by birth-right and seniority, yet sometimes by election, as in the miscarriages of their old Queen, and in second swarms when two are united together.

When several Leaders go forth, one whose party prevails gets the Throne, and all the other competitors are slain. When their proper leader by some mis-hap hath been lost, I have given them another (as I said before) with whom they have well agreed, and prospered, so also in the union of swarms.

And although they are willingly subject to a leader, yet do they not altogether lose their liberty; for the first swarm goes alwayes forth at the will of the commons; and although the second, and also the third, must have the Regal assent which usually (being indulgent to their issue) upon petition they grant; yet if the Commons see it not convenient to diminish their numbers, upon the Queens grant, they kill the Probationer, and all of the Blood-royal; so that Prerogative avails little in the Commonwealth of Bees.

The Queen Bee (for it is an Amazonian Commonwealth) transcends in greatness and beauty of body; but which is most praise-worthy in a Commander, in mildness and gentleness, therefore though they have stings they never use them, which the breeding or mother Wasp doth, stinging more venomously than the smaller.

The Laws whereby this Commonwealth is ordered, are natural, not written in letters, but engraven in their manners; and so studious are they of peace, that neither willingly, nor unwillingly do they offer injury to any of their subjects.

Who will not hate the *Dionisii* of *Sicilia*, or the *Ottoman* family among the *Turks*, or the present great *Mogore*, or *Persian* Tyrants? who (in practise) hold Monarchy to bee nothing else but a lawless exorbitancy in all manner of lusts and mischiefs, which ought to bee far from a good Prince; lest while hee seems to bee a man, hee discovers himself to bee far worse than these irrational Insects.

And as their life is not vulgar, so neither their birth and original; for whereas all domestick Bees, at first are imperfect creatures, worms fixed to their Cells, wanting many senses for

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twenty dayes together, and then that they may live a more perfect life after a death of twenty dayes, more transmuting their shape, come forth winged creatures; The Queen Bee is bred (as I formerly hinted) in another fashion.

There bee in every Hive ordinarily on the outsides of the combs (yet sometimes in the middle) but not near the verges, little concave cells (but one in a place) almost like acorn cups, but nothing near so broad, yet somewhat deeper, very strong and thick of wax, orbicular, wherein the Queen Bee injects a spermatical substance thick like cream, but somewhat more yellow, wherein the Queen Bee is bred perfect at first in all the parts, and lying almost round in it, feeds of it, and so grows as the chicken in the shell, first of the white, and then of the yolk (while the Hen sits upon it) untill it bee disclosed.

The *Athenians* banished *Pisistratus* from their City; and the *Syracusians Dionisius* from his Royalty; and many other people several Tyrants for their want of humanity and moderation: But in the Bees Commonwealth, never any Commander gave occasion of dislike to the Commons. Shee orders others what to do for the publick good, or rather nature directs them; shee is provided for, and maintained by their labour, and they directed, protected, and preserved by her society.

How the Queen Bee governs, I will not (as many conjecture) cannot certainly determine; each Bee readily fulfills, and follows her proper task, and all in all, aim at the publick welfare; none, how old soever, desiring a Writ of Ease, but all labour untill their labours kill them.

The Queen Bee lives not retired (constantly) in any part, but as occasion serves, is sometimes in one part of the Hive, sometimes in another, but works not, nature denying her fitting organs.

And because some have observed large orbicular cells on the edges (for the most part) of the combs, they have therefore supposed them to bee their pallaces, but they are scarce capable of half their grown bodies, and are onely seminaries for generation, not places or pallaces for habitation.

CHAP.

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CHAP. IX.

Of the Drone.

THe Drone is a great Bee without a sting, the Vulgar opinion is, that hee is made of a Honey Bee that hath lost her sting; but no man ever saw that a Bee became a Drone.

Others seeing the fondness of this opinion, have thought that the Drone is a different species, and that as Bees breed Bees, so Drones breed Drones, which conceit, if the Author had observed, that at the time of their breeding, and many months before, there is not a Drone left alive to breed them, hee would have liked as well as the former. J. Stobæus de potentibus ser. 45.

Aristotle saith, That they onely are bred of the Bees, but the truth is, they are of the same species with the Honey Bee, but of a different sex.

Many reasons are laid down by Mr. *Butler* to prove the Drone to bee the male. Mr. Butler Feminine Monarch, c. 4.

First, because though they bee great Masters of the Honey, yet untill the Bees begin to leave breeding, and have conceived for the next year (which some do in *July*, most before *August* is expired) they suffer them, afterwards they begin to beat them away, which if some stalls do not, they dye naturally before *October*; and from thenceforth all the Winter untill the Bees breed again, there is not a Drone to bee found in *rerum natura*: When they are quite gone, then do the Bees lay no more seeds that year, but onely hatch and breed up those that are in the cells.

Secondly, because as the rather, and the more the Drones are, the greater and the earlier are the swarms: So where the Drones are few and late, there is small increase. And therefore if you kill the Drones of a Hive before they have done swarming and breeding (as some fondly have done before Midsummer, to save their honey) neither will the swarms come forth that were formerly bred, nor the stock thenceforth breed any more. After which time bringing in Bee-bread as much as before, and having no young ones to spend part, they lay it up carelessly in their cells, where it corrupteth and turneth to stinking,

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ſtopping, which will cauſe them ſo much to miſlike their Hive, that in Autumn they will yeeld to the robbers. And if by your care and watchfulneſs they bee then preſerved, in *February* following, when the breeding time begins, finding their wombs barren, and therefore loathing themſelves, they yeeld their goods to them that will take it, and after a while by converſing with the ſtrange Bees, like of their company, and go away with them to their Drone. But every fair day they will with them return to fetch that they left behinde.

Thirdly, becauſe every living thing doth breed male and female of his kinde, and experience doth teach us, that the Bees do yearly breed as well Drones as honey Bees; and ſeeing the honey Bees are females, it followeth neceſſarily, that the Drones are the males of the ſame kinde: And therefore the Drone in the learned languages hath his maſculine appellation, as the honey Bee her feminine.

Fourthly, wee ſee the like in the likeſt Inſects, the Waſps, Hornets, and Humble-Bees, of which in their proper places.

Fifthly, I adde the Drones are males, and the honey Bees females, becauſe of the ſmalneſs of their voyce, which is alwayes ſmaller, and ſhriller in females than males, except Cows, which bellow lowder than Bulls.

Ariſt. de hiſt. Anim. lib. 4. cap. 11.

When the old Bees have ended their firſt brood of females, then laſt of all after the ſame manner, firſt in the Drone combe, which is one, and but one in every Hive, and almoſt the backwardeſt, made with deeper and wider cells for the nonce, they breed the male Bees, or Drones, as was long ſince obſerved.

Plin. Nat hiſt. l. 11. cap. 11.

In the latter part of the year they breed ſome promiſcuouſly with the Nymphs, but then they elevate their covers.

That not many are bred before Mid-May, not any before Mid-April (except a few by chance which are not ſuffered to live) as Mr. *Butler* aſſerts, is not ſo; for there are ſome in all ſwarms, and ſome ſtocks (with us) ſwarm by Mid-April, therefore muſt the breeding of many of the Drones bee then finiſhed.

And after a Hive hath ſwarmed, though before you ſaw not one,

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one stir, yet then shall you take notice of their flying abroad every day about noon. But when the Hives are full, and yet swarm not so early as their fellows, they will then (but not often untill Mid-May) flye forth, and play a while, and then return into the Hive to fill their bellies.

But to put all out of doubt, that the Drones are males, I adde that the Drone in dissection hath two large testicles, greater, proportionably to his body than any other creature.

They are joyned together upward, but hang down towards the tail in two visible parts, of a whitish watry colour towards the ends, their ends or points are of the bigness of a small pins head, milk-white; the testicles are half as long as the nether part of the Drones body.

In the belly is a white entral longer when it is extended then the whole body. They have lungs (if my eyes deceive mee not) of a reddish colour, divided as it were in the middle. The outward part of the back and breast is of a grisly substance, under which is a kinde of flesh, all of a reddish colour, where is the heart, and other necessary parts, although (without a magnifying glass, by an expert Anatomist) not exactly to bee distinguished.

The eye hath a watry substance, and there is a visible brain in the head, of a reddish colour.

In the tail (which I had almost forgot, though often made trial of it.) upon a little pressing, a saffron-coloured Ox-head, with stretched out horns, and a crooked snout will discover it self, which one (cited by *Aldrovandus*) pressing a Drone to experiment whether it had a sting, reports as a strange, and never before heard of relation (I often saw it before I read him, or any other.), And hee concludes that nature in this portent doth shew the seminal reason of them, and how being lost they may bee recovered; which how to effect, *Virgil* and others have at large discourfed. This is supposed to bee the instrument of generation. Bernard in Gomesius. Miedis, lib. 1. de Sale. Mr Remnant, discourse of Bees, l. 1. c. 2. Arist. de gener. lib. 4. cap. 4.

The testicles are in the upper part of the belly, and so likewise the males among birds have the testicles drawn inwards. L. Verul. Silva Sil. cent. 9. 852.

The difference between male and female, in some creatures is not to bee discerned, otherwise than in the parts of generation,

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as in Horses and Mares; but some differ in magnitude, and that diversly, for in most the male is the greater; the chief cause is, for that the males have more strength of heat than the females; now heat causeth greatness of growth generally, where there is moisture enough to work upon: But if there bee found in any creature (which is rarely seen) an over great heat in proportion to the moisture in them, the female is the greater, as in Hawks. Heat also dilateth the pipes and organs which causeth the deepness of the voyce.

Aristotle delivers that the Drones are bred by themselves if the Commander lives, but if thee dyes, they are produced in the Bees cells by the Bees, and these so bred, are more hardy and couragious than the other; but the truth is (as I hinted before) all Drones are bred by the Bees, when they are wearied, and almost spent with breeding of females, that by them they may have a new prolifical power whereby they may breed females afresh; but the Drones are first bred in the Drone combe, which is afterwards at least a great part of it filled with honey; and then in the latter part of the Summer, they breed some Cephens among the Nymphs.

Arist. de hist. Animal. l. 9. c. 40.

As *Aristotle* could not determine about the breeding of the Drones, so neither of the making of the Drone-comb, sometimes hee layes it down, yet as the judgement of others (suspending his own, as in a thing uncertain and dubious) that they made their own combs in the Hive, or did assist at least the Bees in that labour; sometimes that the Bees made the Drone-combs, but yet onely then, when there was great expectation of much honey; whereas in a Hive stored with Bees, there are not many dayes difference between the beginning of their own combs, and the Drone-comb. Nay they begin the Drone comb and half finish it, before they make the Nurseries (for so I rather call them, than with *Aristotle*, houses or pallaces) for their Queen, of which there bee alwayes some in every hive. And therefore *Aristotle* was deceived, who saith, They made the Queens Pallaces or Nurseries onely, *Cum fœtus largior esset*, when they had a numerous issue.

The Bees never destroy the Drone-combes as *Aristotle* affirms, although they do the Drones, when they have no more need of them for that year.

Aristotle

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Aristotle saith, The Drones are useful, if not too numerous, and the Bees because of them more industrious, but wherein they are useful hee mentions not. Nay, hee allows the Drones no service in the hive; but by his leave they are profitable to the well-being and generation of the rest, being the males; and also by their heat in hatching the young, especially after the stock hath cast a swarm or more, there being few Bees left, and most of them in the day time abroad at their work.

But the Drone works not at all. as Mr. *Muffet* affirms, who saith, they gather wax, and sometimes build the combs; but had hee seriously viewed them, hee should have seen a disability to gather, nature having denied them fitting fangs and tongue, for they are very short, and not fitting to gather. Mr. Muffet Theatrum Insector.

Ælian tells a long story, how that the Drones lye hid among the combs in the day, but in the night when the Bees are asleep, rob and purloyn the honey, which when the Bees understand, (for most of them sleep being weary with working, and a few onely watch) they first correct them gently, and drag them out of the Hives by the wings. But for all that they will not bee amended (for by nature they are gluttonous, and lazie) as soon therefore as they are gone abroad to work, they follow their work, namely fill themselves with honey; but when the Bees return and finde the spoyl, they deal no more gently with them, but kill them out-right.

Once the Drones do not only serve for generation (as hath been shewed) but do also much help the females by reason of their great heat in hatching their broods. And for these causes they are alwayes in breeding-time mingled with them throughout the Hive: Although afterwards (when they have been much beaten, and can go no where single, but one or other will bee on their jacks) they gather all together in a cluster for their safety in one side of the Hive; so that it is true at sometime, which the Philosopher spake indefinitely, *Tenent alvei locum penitiorem*. And yet their hanging together will not serve their turn, for the Bees, when they are disposed, will quickly make them part, and depart, when there is no use of them, there will bee no room for them. Plin. Nat. Hist. l. 11. c. 11. Arist. de hist. Animal. l. 9. c. 40. Mr. Butler.

The Bees breeding, or laying of seeds, beginning to cease in some

some sooner, in some later; and these *Amazonian* Dames having conceived for the next year, begin to wax weary of their mates, and to like their room better than their company. It seems incredible to some, that the honey Bees should receive a prolifical vertue from the Drones, which they should exercise eight months after, and yet they consider not, that if a Hen be trodden a day or two, some affirm the eggs will be prolifical the year following. And Dr. *Harvey* attests the same; but yet upon the experience onely of twenty dayes, it is confessed, that it is sufficient for that latter; and *Aristotle* saith, That generous Hens will lay sixty eggs, before they sit, others more; so that they will bee sometimes prolifical two or three months, but afterwards they must bee trodden again, or the eggs will bee addle. But to leave this untill wee treat of Wasps, when wee shall have a more fit occasion to handle it.

Hier. Fabricius ab aqua pendente de formatione ovi & pulli.

The Bees having conceived, begin to neglect, nay to molest their Mates: At first not quite forgetting their old familiarity, they gently give them Tom Drums entertainment; they that will not take that for a warning, but presume to force in again among them, are more shrewdly handled. You may sometimes see a handful or two before a hive, which they had killed within, but the greatest part flyeth away, and dyeth abroad.

They are but short lived creatures did they live their utmost date; for eating much, and being idle, onely in the heat of the day, with a great humming sound, they flye forth, and fetching a short compass or two, having emptied themselves, and whetted their stomachs, they return to feed, and that alwayes of the purest honey, whereby they may become so foggy, that oft-times before the Bees meddle with them, you may see hundreds in a day crawl rather than flye out of the Hive, but not able to recover the stool again, miscarry abroad.

And whereas poor stocks (I mean such as have few Bees, though otherwise well provided) despairing of their own continuance, let the Drones alone, not disturbing, much less killing of them, yet not one will out-live *October*.

Bedæ axiom.

Some may ask, Is not the male more worthy than the female? How is it then, that the Drones are but vassals to the honey Bees? which as they excell the Drones in vertue and good-

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goodnes, so in power and authority, ruling, and over-ruling them at their pleasures. Albeit generally among all creatures, the males as most worthy, do master the females.

And this *Sesostratus* King of *Egypt*, who conquered a great part of the world did thus express according to *Herodotus*. If hee overcame any people without contention, or battel, hee made them bear the badge of a woman engraven in their weapons, but if they did fight it out couragiously, the cognizance of a man. Yet in these, and a few others, the females have the preheminence: And by the Grammarians leave, the Feminine gender is here more worthy than the Masculine. So in all the kindes of Hawks, the female doth command the male, as being the stronger, and the better armed. And the female of the Bear, and the Panthar are more bold and couragious, stronger, and of greater spirits.

Coelii Calcag. Comment de verborum & rerum significat.

Arist de hist. l. 9 c. 1.

The female Ounce likewise, though less than the male, yet is more cruel.

Jo. Caii hist. rarior Animal.

Ridiculous is the conceit of *Democritus* to catch the Drones. Wet, saith hee, the covers of the Hive with water, and in the morning you shall finde the Drones busie sucking thereof, for feeding of the best honey, they are alwayes thirsty; Nay because they feed of the best honey, and not *Sandaracha* which is hotter, they are not thirsty; for the Bees all Winter long, while they live, thereof drink not at all.

Weeker. de secret. l. 8.

Timely ridding of the Drones by the Bees, is a good signe that they are like to bee forward the next year; because the stocks that have cast often, do bear long with their Drones, although there bee twice so many as bee needful for the Bees, that are left, therefore (to save the honey which these would devour) it is not amiss to prevent them; and about a fortnight after their last swarm to diminish their numbers, which you may do safely in the heat of the day, killing them with your fingers: And the bruising of them with your fingers before the Hives mouth, will sometimes cause the females to take the worke out of your hand, and fall upon them themselves.

Some use Drone-pots made of Oziers, the twigs being set so close, that the Drones, although they go forth, yet cannot easily return in again. But the catching this way doth much

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trouble; the Bees may sometimes keep out the Queen. And therefore I like not of them.

CHAP. X.

Of the Generation of Bees.

IT hath been an ancient tradition, that Bees have a twofold production, as many other creatures, by generation and putrefaction. About this latter way, *Virgil*, *Cardan*. *Aldrovandus*, and many others have been copious; but whether there bee any solidity in this particular, I am somewhat dubious, because it was never authentically proved to bee performed by any. But they tell us that the best sort is procreated of a corrupted Lion; And therefore say it is no wonder, that being so small creatures they fear not any, nay prevail over the greatest, with a Lion-like courage assaulting them.

Suidæ Historica. A second sort is bred of a Bull, and therefore they are called the daughters of Bulls, because they are bred of their carkasses.

A third sort of a Cow.

A fourth sort of a Calf, but tell us not wherein these kindes differ, for they forgot waking what they dreamed of sleeping.

Would I spend words to no purpose, I might easily for the general, evince the invalidity of this opinion, for in *Brasile*, *Peru*, and most of the new world where are many sorts of Bees, and some in colour and magnitude not differing from ours, there were no such creatures, whereof (if they were lost) they might bee again recovered, before they were transported by the Spaniards.

Mussei Theatrum Insector. But more absurd is that opinion of others, that of the ashes of Bees bedewed with sweet wine, and exposed to the Sun in a warm place, there will bee a present resurrection of the former burnt Bees.

Dr. Harvey de generat. Animal. exercitat. 13. Perplexed and various are the opinions of the Learned, concerning the generation of Bees.

The first workings of nature are as dark as midnight, and with

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with their subtlety do not less be-fool, and deceive the strongest understanding than the bodily eye.

Some not comprehending their conception and generation, have fondly delivered that they carried the spermatical matter of their original into their hives, gathered out of flowers, and after hatch them, either from the white honey suckle, or the reed (or Calamus) or from the Olive because, in yeers abounding with Olives, there are plenty of swarms. Not considering that the first brood is hatched before any of these flowers bl ssome, and that some of these flowers are not at all in the Northern Regions where is the greatest plenty of Bees. Arist. de hist. l. 5. c. 19.

And for the Olive, *Pliny* denies that they taste of it, and therefore saith, it is better away; and yet hee was sometime of a contrary opinion. Plin. Nat. hist. lib. 21. c. 12. idem. lib. 11. cap. 8.

Cardan denies that they lay eggs, but are bred of honey. This *Scaliger* well opposeth, because, saith hee, There can bee no generation of honey, for then it should bee the seed of the Bee; but this is false, neither of honey corrupted, for it corrupts not, but preserves from putrefaction. Card. de subtil. l. 11. Scalig de subtil. 151 exer.

Scaliger questioning whether Bees did copulate or not, saith that of the dew in leaves of plants, worms are produced, and therefore dew opportunely gathered, and fomented with a genital heat of the Bee may be animated into a worm. But the first, and chiefest breeding of Bees is in the end of *February*, when they scarce stir forth at all, or not untill the dew be exhaled. And howsoever untill *May*, dews are known to have little efficacy, or excellency, besides you may visibly see the eggs when they are first injected into the cells, they are eggs, and not a dew.

Scaliger, though hee propounded the former opinion, yet held not to it; for whereas *Aristotle* delivers it as an opinion of some that the Bees bred by copulation, and that the Drones were males, and the honey Bees females; this saith hee is false (although without reason or experience) for the Bees indeed are females, but the Kings are the males: And *Muffet* also acknowledgeth no males but the Kings. Scalig Comment in Arist. de hist. Anim. l. 5 c. 19.

I beleeve, saith *Muffet*, they propagate by copulation, and the greater are males (namely in his sense the Queens) and the less females, but whether they tread as Cocks hee professeth that he knew not. Muffet in Theatr. Insect. l. 1. c. 3.

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Michael Tzetzes in Onomastico super Theophrast.

Tzetzes supposeth that Bees copulate, and that the Bees are the Males, and the Kings Females: And that the Kings do at certain seasons cast forth worms in multitudes as flies, their flye-blotes, and that the Drones sit upon them, and hatch them after the manner of Serpents.

Mr Romanshist. of Bees.

Another saith, the matter in which they blow or breed, is something that they gather of the flowers or plants, and bring home, and put into the holes, or cells of the combes, which they mix finely with a little water, and then blow in it a thing less then, or as little as a flye-blote. But this cannot bee, for wee finde nothing in the cells wherein the seed is injected, but the seed it self. And again, the Bees seed is much bigger than a flye-blote.

Arist de gene. lib. 3 cap. 10.

And as to others, so to *Aristotle*, the generation of Bees seemed very ambiguous and doubtful; for whereas among fishes some generate without copulation, he sometimes supposed the same of Bees, and argues thus: They must either fetch their young else-where, as some in his age opinionated, which young must be either bred of themselves, or be produced by some other living creature, or they must generate them, or partly fetch them, and partly generate them: For so some supposed that they fetched onely the Drones, or else they must generate them by copulation, or without copulation. Thus Bees by copulation among themselves to breed Bees, Drones to breed Drones, and the Queens to breed Queens. Or all the rest from one kinde, either from the Queens, the Drones, or the Bees; for some, he confesseth in his time, held that the Drones were males, and the Bees females: Others held a contrary opinion, that the Bees were males, and the Drones were females.

But against all these tenets, *Aristotles* reasons as impossibilities. If, saith he, they breed not, but fetch their young else-where, of necessity it must bee, that there be Bees without any labour of Bees, namely in that place from whence they fetch their seed; for why do they come to perfection, being carried away, and not in their own proper places.

And again he saith, It agrees not with reason that the Bees are females, and the Drones males, because nature never gives females weapons to defend themselves withall.

Now

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Now the Drones are weaponless being without stings. And on the contrary, it is not reasonable to imagine that the Bees are males, and the Drones females; for no male are diligent and laborious in educating of their young Cock-pidgeons, and most males among birds, sits part of the day, as well as the female, and as diligently feed their young. Some say the Partridge makes two nests, and the Hen sits upon one, and the Cock upon another, but they are mistaken. The males also of beasts of rapine seek out, and provide for their young. D. Har. exercitat. 38.

And that some Bees should be males, some females, is altogether likewise improbable, for in all creatures the male differs from the female, externally many fowls differ not, as Crows, Rooks, and many small birds.

And that by generation they should procreate, is as unlikely, because no man ever saw it.

At last he determines that the Bees are females, but as plants have both sexes, because the sex is not to be distinguished. But if the Drones are bred without copulation, then also keeping the same order, the Bees, and their Commanders, are bred without copulation.

He concludes after a long uncertain discussion of this doubt, That the Kings or Queens Bees breed themselves, and the Bees. It is necessary also that the Commanders be procreated by some, but neither of the Bees, nor of the Drones, therefore of themselves.

Now the Commanders cels being last made, and but few in number, they breed therefore their own kinde (few according to the cels) and also the Bees. And the Bees breed the Drones, and they breed nothing; and so the Generation determines in the third number, *Non tamen satis adhuc explorata quæ eveniant habemus*; so that in all this we have it confest; there is much to little purpose: The Drones, whatsoever some say to the contrary, is the Male-Bee, and although he be not seen to engender with the Hony-Bee, either abroad as other Insects do, or in the Hive, which (whatsoever some have projected) is impossible, yet without doubt is hee the Male-Bee, by whose natural heat, and masculine vertue, the Hony-Bee which breeds, both Hony-Bees and Drones conceiveth; that they are Males, we have sufficiently proved in the former Chapter.

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In the next place the main Query is, how the *Bees* receive a prolifical power from them.

Albertus Magnus. lib. 26. *Albertus* denies by copulation; but granting the Drones to be Males (which is undeniable) and the Hony-Bees Females.

Arist. de Hist. animal. lib. 5. c. 2 *Aristotle* concludes for it, he saith, *coeunt ea in quibus mas et femina est.* Those creatures conceive by copulation where there be Males and Females. And again; they that are bred of the same sort, or kinde, if there be among them Male and Female, *e coitu generantur*, are bred by copulation: And this is asserted by others.

Idem de Hist. animal. lib. 5. c. 1. Geor. Piscatorius. That they engender not together, *Aristotles* Argument is, because there be but few young in their cels; but other Insects that are procreated by copulation ingender long, and hatch quickly: This Reason is frivolous, nay false, for the Bees are numerous in their young (what I say not almost innumerable) and they hatch quickly, sooner than the Wasp. And yet that Wasps are bred by Generation (being *cognatorum generatio*) and not Bees: He attributes it to a defect of Natures bounty towards them, because *nihil ut apum, habent genus divinitatis.*

Arist. de Generat. lib. 3. c. 10

So that according to the Philosophers axiome, and the weakness of his reason to the contrary, they do engender together; but because this is not visible, and therefore perhaps may be denyed by some cavilling Sceptick. I will further shew that the Hony-Bee may have a Masculine vertue from the Drone, otherwise than by copulation. For in the Eele, and the Purple, (a Shel-fish whereof Purple comes) is no Sex visible, yet by their slaver, not by copulation do they produce their young, and perpetuate their kinde.

And many other sorts of fishes do not by copulation become fruitful, and generate their kinde; but when they have brought forth, or laid their Eggs, the Male bedews, or sprinkles them with a seminal moisture, whereby they are not addle but prolifical.

Arist. de Hist. animal. l. 6. c 12

Dr. Harvey de generat. animal. exercitat. 40 I have seen, saith Dr. *Harvey*, the Male-Fishes to follow the Females in shoals in breeding-time, that they might sprinkle their new laid Eggs with their Milt, or seed. Thus the Sepia or Cuttle-fish.

There is a Fish called Glanis, in the River *Glanis* in *Hetruria*:

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ria: The Female whereof by rubbing her belly on the Males belly is fruitful; and so the Scate and all Fishes with a full tail with the rubbing of their bellies together engender: And so in a word do all fishes, besides broad griftly fishes. Arist. de Hist. lib. 6. c. 13

All Fishes that bring forth Eggs, their copulation is scarcely visible, but without a Male they conceive not, nor any other Creature where there are Males. Vultures saith *Ambrose* conceive without a Male, and generate without conjunction; but *Aldrovandus* on good grounds denies this; and also *Albertus*, who saith, they are often seen to tread. Ambrose hexam l. 5. c. 20. Ulyss. Aldro. Ornithолog. l. 3

When the Bees have conceived, they deliver their seed, not by their tail, but by their mouth, *fetum edunt ore editum ut aiunt quidem*; and this was the cause that some thought that they fetcht it elsewhere from some flowers: *Aristotle* therefore speaking of it, speaks doubtfully ὡς λεγουσιν, for it is a very obscure thing. Arist. de Hist. animal. l. 5. c. 19

And that they blow their seed, our Vulgar expression intimates, for their young is called spar, that which the Bees spit forth, or deliver by their mouthes.

If wee affirm the seed of the Bee to be blown, it cannot so properly be called an Egge, *Aristotle* saith *Aquapendens* was very careful not to call the seed of Insects Eggs, but Worms, yet Dr. *Harvey* cites him, as if he sometimes or promiscuously, called the Worms, Eggs; It is true, hee called the seed of a kinde of Grashopper Eggs, but it was before they were quickned but when they are hatcht, hee calls them no longer Eggs, but worms: Although indeed they may seem when they have done feeding, and are inclosed in their cases to be amalogous eggs, but not while they feed; and therefore *Aristotle* saith, Every kinde of worm when it hath attained his full end, and perfect magnitude, is as it were an egge, for the shell hardens, and for a time it stirs not; which, saith he, is apparent in the worms of Bees, Wasps, and Caterpillars. Aquapen. de formatione ovi & Pulli. p. 19 Arist. de Hist. lib. 5. c. 29, 30 Dr. Har. de generat. animal. exercitat. 61 Arist. de gener. l. b. 3. cap. 9.

But the Philosopher enumerated too fast: Of Caterpillars it is true, and of all others that have proper, or natural cases, but such as have adventitious, as Bees, and Wasps, never harden.

An egg properly is that, out of a part whereof a living creature is produced, and the residue is meat for it, improperly that

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Aqua pend. that is an egg out of the whole whereof, a living creature is bred, as the eggs of Spiders, Ants, Flies.

Arist. de gen. lib. 2. c. 1. Insects first breed a worm (although it be not yet a worm untill it be hatched, but indeed rather an egg) and this after a space of time is a kind of egg, for the Aurelia hath the faculty of an egg, and a living creature is bred of it, receiving in the third nutrition, the end of generation.

Mr. Butler, Mr. Levit, Mr. Remnant. That the Bees blow as a Flye or Wasp, is affirmed by some. And as the blotes of the flyes are nourished by the flesh wherein they are blown, and by the earth wherein they are bred, so the spat or brood of the Bees, saith Mr. *Levit*, are nourished by honey and water; but of this in his place.

The Bees seed is white, about the bigness of a Butterflies, not round, but oblong, which they lay close under the honey-combes. In the middle of the bottome of the void cells

Mr. Butler round like a ring, saith Mr. *Butler*, but although he was a great observer, yet for want of observing himself, and following, as he supposed *Aristotle*,

T. Gaza he was mistaken in *Theod. Gazas* translation, who renders the word, πλάγιον by *obliquus*, which *Scaliger* well reads *ad latus*.

The Bees seed first sticks to the side of the cell, saith

Arist. de h st. Animal. l. 5. c. 19. *Aristotle, ad latus jacet*, alwayes (as I remember) at an angle, some distance from the bottome, and so doth the Wasp lay her seed, and not close to the bottome; thus it sticks with one end, and with the other end bends slope-wise towards the middle of the cell.

And after it is hatched, it lyes a while cross, or side-wayes, with the mouth somewhat erected, and grows so long as the matter of augmentation continues, which is not long, and then it falls to the bottome, and raiseth it self up that it may be fed. It will raise it self up, and sink as it were within it self by contraction when it pleaseth; for though it have not feet, yet the skin is somewhat scabrous whereby it rouls, or moves it self higher, or lower within the cell.

The Bees in their breeding discend by degrees towards the nether part of the combs, filling one cell after another: But when their chief breeding is past, they do not precisely observe this order, but lay up their food promiscuously among the young Bees, where they find the cells empty.

First,

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First, The seed sticks to an angle above the bottome, when it is hatched, it falls after a little space to the bottome, but cannot come forth to take food, which yet *Aristotle* seems to grant to be necessary: First, he saith, It is nourished, but tells not how: Secondly, he saith, over against the cells, where the young are bred, the hony is laid up, he tells us not wherefore.

But *Scaliger* saith, That the young may eat thereof, at *Accumbenti cibus opponatur*, supposing, as he professeth, a few words before that, the worms and hony were both together in one cell; for he rationally concluded, they could not live and grow without food, they were not *locomotive*, and therefore could not go forth of their cells for it. How therefore they should receive it, was the great mystery. He supposeth the worms to stick fast on one side of the cell, and the hony on the other, that with bowing of their bodies, they might feed themselves. The worm, saith he, sticks so fast to the side, as if she were glewed or rivited there, but by no means at the bottome, lest she should be drowned with the hony. And this supposition of the worm and the hony being together in the same cell, made him conceive the worm smaller than the Bee; for saith he of the seed is generated a worm, which worm is alwayes less than the Bee; but this is not so, for the grown worm is every way as great, and as large as the Bee. Scalig. Comment. in Arist. de hist. l. 5. c. 19

But neither of the former opinions are true ordinarily, for the Bees are bred usually in the combs before, or in the lower part of the other combs, the hony (if there be any) being reposited in the backward combs, and the upper parts of the other. It is true indeed, that the Bee-bread is oft laid up in the void cells, among the breeding cells; not that the young may feed themselves, but that therewith being ready, and near at hand they may be fed by the Bees.

The seed is never visible in Bee or Wasp, that I could discern upon dissections of many in one part or other.

Cardan affirms that they cannot have eggs within them, and be exercised in their continual labours, because neither Silk-worm, nor Grashopper as long as they flye, have none; suppose the assertion true, that they have not eggs within them (but how then feed which I believe) yet is this instance and Cardan. de subtil. l. 11.

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reason very weak. *Scaliger* answering him, justly denies what he saith, but contradicts not his instance, onely saying, That they that are well versed in natures secrets can determine this; whereas it is well known, that the Silk-worms when they have wound up themselves into their bottomes after twelve or fourteen dayes eat themselves out a winged creature, but have little lust to flye presently for fulfilling their lust, and ergendring together: Whereby the male having spent himself falls down, and dies, and the female also as soon as she hath laid her eggs, which is not long after.

As for the Grashoppers, they will flye nimbly with eighty, nay one hundred eggs in them as big as the eggs of Pismires, and the claw-tailed Humble-Bee (of which afterwards) works as diligently, and flyes as deliverly when she is great with young, as when she is barren.

Fabric. ab Aquapend. exer.

Fabricius concurs with *Cardan*, and therefore renders this as a reason why some creatures lay eggs, and bring not forth living creatures, because if they were detained in their bodies untill they were hatched, with their weight they would hinder their flying: It is true, if many were animated within them at once, it might be so, otherwise not, as is manifest by the former example.

Scaliger de subtil. exer. 391.

And that it is possible for Bees to flye with eggs, *Scaliger* makes good by these following instances: Hee took a Glow-worm engendering with a female, and put them all night into a box with a hole in it. The male continued at his work next day, and at noon giving over, dyes; from that hour untill evening the female laid many eggs which were hatched in twenty hours, and presently went their way; so that some Insects speedily hatch, and perfect their eggs.

Therefore he concludes Bees may copulate in a few hours, and presently lay their eggs.

Likewise he relates, that when he was a stripling, that he took of the greater sort of flies, one marked with white strakes, and holding it some while in the hollow of his hand, being delighted with the shape, it brought forth many white worms notable for their motion. And therefore as these carried worms, so may Bees eggs when they flye.

But the Flesh-flye, Butter-flye, and many other, [illegible] with-

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without all controversie flye about with their eggs in them. Now *Scaliger* at last discovered his little experience in the nature of Bees, when thinking to answer more fully, hee mars all: For whereas *Cardan* saith truly, they are in continual labour, hee denies it, and affirms, that the Bees having gotten honey by labour, they take the benefit of it without any more working: Whereas it is certain, that they never give over working (the season being fitting) as long as there is any thing to gather, and they give over breeding, before they give over working.

The seed being hatched lives, and excerns excrements. All Insects first make a worm, except a certain sort of Butter-flye, which produceth a certain hard thing, like wilde-saffron seed, bu fluid within.

Now the generation of Insects in these worms, is not caused in some part onely, as that some part of the egg, turns to the formation, the rest to the nourishment, but the whole alters untill it attain the just and due proportion.

Creatures which produce a worm first, bring forth a small one, which is increased by it self, without any addition, as meal by leaven is made of a little mass a greater. Arist. de generat. l. 3. c. 4.

And again, some creatures have this property in themselves, that they have an increase for themselves, as the worms of Bees, others gather it abroad, as the worms of Butterflies, called Caterpillars. Idem de generat. l. 3. c 9.

This is, if at all, but partly true; for after they are hatched, there is a small augmentation from the seminal vertue; but as soon as they are capable of food, they must have it, or else after three or four dayes they will dye, as I have often experimented; whereas when they have done feeding, and are shut up with their waxen covers, they will (though out of the Hive) live, and come to perfection; but will bee perhaps longer in their Metamorphosis, than if they were continued in it. I have had some three weeks before they have eaten themselves out.

Creatures shaped without the females womb have in the egge, as well matter of nourishment as matter of generation of the body, because after the egg is laid, and severed from the body (of the Hen, or other creature) it hath no more nourishment from the Hen, but onely a quickning heat when shee sits, but as soon as the chicken is disclosed, there is not much

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longer any matter of nouriſhment, but it muſt receive it elſewhere.

Ariſtotle acknowledgeth that they void excrements, and can there bee excrements without a ſupply of food, or a mutiplication of a little ſeed above a hundred fold by the ſeminal vertue, or ambient aire, eſpecially where the excrement are four times ſo much as the ſeed, or egge was at the beginning; yet *Aldrovandus* concurs with *Ariſtotle*, ſayirg, That the worms of Bees and Waſps have within them that which is the matter of their augmentation; the contrary whereof is evident, for if the Hives be not provided before hand, or ſupplied daily with food in ſtormy and unſeaſonable weather, the young brood will dye in the cells, and you may ſee the old ones carry them out in abundance upon the firſt change of the weather, and then breed again.

Often towards the end of Summer, if hony-gathering bee not plentiful, they will draw out the young unfledge Cephens, and ſometimes (though rarely) the Nymphs, leſt for want of ſufficient meat they ſhould all ſtarve together.

Fiſhes produced of eggs (as almoſt all are) either within the females, or without them, at firſt receive no meat, *ſed creſcunt hauſto ovi humore*, but afterwards are nouriſhed when they grow with the river water.

Dr. Har. de gen. animal. exer. 44. In the generation of Animals which are procreated by an after addition of parts (as the chicken in the egge) there is not to bee ſought another matter, out of which that which is to bee produced, is to receive the ſhape of a body, and another out of which it is made, nouriſhed, and increaſed. But here in the eggs of Inſects, it is otherwiſe, becauſe they are not at firſt perfect, and therefore muſt have an increaſe, and augmentation elſewhere, untill they attain their juſt magnitude.

Harvey de gen. exer. 62. The eggs or worms of Inſects have from without them that whereby they increaſe. But how they have it, is a riddle. Seeds of herbs, as Beans, &c. attract by their huſks, or ſhells the moiſture of the ground, which they ſuck in like ſponges, and are therewith nouriſhed as well as if they received the ſame by veines. But thus the worms in the combs cannot bee fed, the meat being remote from them.

Idem exercitat. 9.

Idem exer. 6. The Bees vomit forth the hony which they have gathered and

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and digested in their bellies, and lay it up in their Hives, and after the same sort the Hornets, and the Wasps nourish their young. The assertion is not true, or very ambiguous and imperfect. If hee understands that the Hornets and Wasps empty into their cells what they collect, and gather, then is it not true, for they lay up nothing that ever I could finde. If it bee understood that they feed their young with what they gather, as also the Bees, with what they gather, and also with that which they have formerly injected into their combs, when the weather will not permit them to gather abroad, than it is a truth, but darkly, and imperfectly delivered.

So then wee see after that they are disclosed, they must have meat; out of their cells they cannot come, nor creep, they are not *locomotive*, like Caterpillers.

Now the main Query is, how they should have it? And the ignorance of this caused *Aristotle*, and others to deny, that they received any, so that from the history of their being a worm, to their metamorphosis into a Bee, wee hear of nothing.

Concerning this, I was long without satisfaction, and finding that it was impossible to observe the particulars among the Bees, because of their numbers and closeness, I sought to finde it out by observation in other Insects of somewhat differing, yet of a like nature, in many particulars. I considered that yearly in my empty Hives there bred Hornets, I took notice therefore daily of the progress and order of their work, and generation, which I found to bee thus:

The Hornets neast is begun by one mother, or breeding-hornet at the first, which in the top of an empty hive wrought a very short little drossie pendant peg or pin, about the bigness of the tag of a point of the outer dry parings of pales, or other old timber with a mixture of a gummy liquor that flows from oaks principally (of which matter are all her combs framed) this short peg shee made the foundation and center of a Canopy, or Tent like to a half globe, in the center of which with in she worketh six or seven hexangle cells, all concurring and meeting together in the center, but all jutting out on each side downward, and having wrought them half their depth to an angle of every cell somewhat above the bottome, shee injecteth into each a several seed, and then on the out-side of those

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cells begins six, or seven more, but all cocentring in the same point with the former; and when they are wrought half their depth, shee injecteth into each a particular seed; but before this is done and finished, shee quickens and hatcheth the former, encompassing with her body, or lying round like a ring about the pin that is the center of the globous depending Tent, or Canopy, but in the inside of it, that her heat may equally transmit it self to each cell, and enliven every seed.

Within a few dayes thus receive they life, and begin to stir, at first sticking at the taile end, and then falling to the bottome, do they raise themselves upward. Now the mother sometimes sits upon, or rather about them, and the latter brood also to hatch and comfort them, and sometimes goes abroad and fetcheth food for them, and giveth it them as a bird her young, with her mouth going from one to another: And as they grow shee worketh the cells deeper, until they attain their perfect growth, which will bee above three weeks; and then the first brood begin to bee torpid and dull, and receive no more food, which when they refuse, shee worketh a cover over them, whiter than the combs, and they so continue shut up about three weeks, and being transchanged from a worm to a Hornet, eat of the cover, and come forth, and work, and breed their kinde, but then being many, in broad combs.

And as they are fed, so also I am confident are the Bees, although they come to their perfection in a shorter space: For they also after they have fed about eighteen dayes, and attained their growth, are shut up by the Bees, with a waxen cover, and continue so about the like space wherein they are metamorphosed, and eating the cover before them, lift up the rest with their head, and come forth winged creatures.

Arist. de gen. Animal. l. 3. c. 9

Of this metamorphosis of Insects, *Aristotle* thus; Every imperfect conception produceth first a worm, which is afterwards perfected by a change and metamorphosis, and becomes a living creature.

Dr. Harvey de generat. Anim. exercitat. 44. 56.

In the generation of Animals formed and transfigured of a matter prepared and provided before-hand, and all the parts begin to appear, and are distinguished together by a metamorphosis, and a perfect creature is brought forth: But some, one part or member being made before another of the same

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same matter, afterwards are together nourished, augmented, and formed.

The frame of those begins from some one part as the original, and by the help thereof, the other members are added and joyned together; and these wee say are done by a Epigenesis, or after addition of parts, namely, by degrees, part after part, and in respect of the other, properly is called generation.

After the first sort is the generation of Insects, where the worm by a metamorphosis is bred of an egge, or the beginnings are procreated of a corrupting matter (the moist drying, or the dry moistening) of which as of a Caterpillar grown to a perfect magnitude, by a metamorphosis a Butterflye appears in the just magnitude. Give mee leave to vary from so learned an Author, and diligent observer.

It is a truth that there is no metamorphised creature, and addition of a new matter or magnitude, yet in many there is a diminution for those that have not adventitious cases, or covers, as Bees, Hornets, and Wasps, but natural hardened shells or covers, as Caterpillars, &c. have so much (as the shells or covers) subtracted from the being and substance of the future Butterflyes.

And this also holds not that all the parts begin to appear, and are distinguished together for the change and metamorphosis of Insects is not altogether, but by degrees, part after part is changed, and altered, as wee will further make appear in the particulars.

The alteration of Insects in some is made of the whole, as Bees, they having no membranous skins or shells about them, but the cells of the combs, and not of any parts of it: But every such kinde of worm, when it hath accomplished his magnitude and greatness, is made as it were an egg, for the skin hardens, and all that time it is immovable from its place, yet moves in its skin, cell, or shell, as is visibly evident, for touch the out-side and they will contract, and shit.

Now the cause hereof is, because nature hastens, and before it bee a perfect egg, brings forth so, that the worm by degrees, grows to the bignes of a soft egg, and after in season, eats through the cover or shell (for they are not repolited in cells

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Arist de gen. lib. 3. cap 9. as Bees) and comes forth as a chicken out of an egg being perfected in the third generation. Their metamorphosis is their perfection, and yet some groundlesly have delivered the contrary. Wonderful, saith one, are the metamorphoses of some creatures, for Caterpillars getting wings degenerate into a Butterflye.

Mizaldus memorabil. cen. 2. 60.

Mr. Butler Feminine Mon. c. 4. The worm being now dead, presently the alteration begins from a worm to a Bee which is twofold in shape, and in colour. The first alteration in shape is the division in the middle; then the other division between the head and shoulders, Thus Mr. *Butler*. But it is otherwise, for the transmutation as in a Wasp, begins to be first visible in the superiour part, and the eyes are first discerned, and then the incision between the head and the shoulders, which yet as it grows more perfect, becomes smaller, the middle incision or division is scarcely visible, when the eyes may be seen, then the legs, and the horns begin to bee framed, and the wings are last finished.

When they are perfect they thrust up the covers over their heads, which hang at their backs till they come forth, their fangs and tongue hang down on their breast, but when they are come forth, they then contract them (untill they have occasion of their use) and draw them up close bending under their throats, that they are scarcely visible, but when they eat or work; their colour is at the first ash colour, and so are their wings, but in a little space they convert to a dark brown untill they grow old, when they become gray.

Arist. de hist. l. 6. c. 1. And thus it is in many other creatures. Fishes procreated of eggs, have their eyes apparently great, and oblong, contrary to those creatures which are bred of worms, where the head and eyes are last. But hee was deceived, for in the metamorphosis of flying Insects, the alteration begins at the head, and is first visible in the eyes.

As in dry weather Bees gather most honey, suppose it with moderation, for immoderate drought (as in the year 1652.) withers away the flowers; so moist weather produceth store of Bees, suppose it still with moderation, for otherwise (as in the year 1648.) the perpetual raines washed away all the substance of the flowers, that not onely the swarms, but old flocks generally dyed. I lost above half a hundred, 1648. for my share.

Now

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Now the reason why moist weather produceth store of Bees, is because the Bees do spat and breed the faster, and preserve and nourish their brood the better by the moisture that falleth in those times, which in dry weather they cannot so well get, or rather approve not so well of, for after a warm rain, you may see them drinking on every herb, you can hardly set your foot on the ground or grass near the Hives, but you must tread on them, and that when their water is just by.

Too much fair weather is destructive to the increase of Bees, for going forth every day to gather, they are therewith wearied, and neglect breeding, and so though they leave fat stalls, yet in a short time few Hives, and therefore *Columella* adviseth to stop them in, every third day, that they may attend to breeding. Colum. lib. 9.

The Bees breed best, saith *Aristotle*, when they gather most honey, but herein hee was deceived, for they gather most honey, according to his own position when the honey dews fall, which saith hee, is not *ante vergiliarum ortum*. But wee have often swarms, a first, and a second also out of the same Hive before that time: And generally all good Hives are well furnished with young before that time of the year. Indeed hony is not the ordinary food for the Nymphs, but Bee-bread, which from Mid-March, and in some temperate Springs from Mid-February, they plentifully gather. Aristot. de hist. Animal. l. 5. c. 19.

CHAP. XI.

Of the Hives, and ordering them.

NOw having at last, though not without trouble and travel delivered our Bees, and brought them into the world, it is high time to provide them a house, and a fitting station, which when I have done, with as much brevity as may bee: I will entertain the Reader for his pains, and patience with a collation of sweet meats.

They have Hives of several shapes and matter, in several, and divers Countries, some of Ozier, some of Barks, some of Trees hollowed (and this sort the *Americans* about *Mexico* use) some of square boards, three foot high, and a foot broad; Petrus Crescent. lib. 9. c. 105.

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so in scarcity of Hives, I have known some use Butter-sukings: Some of earth, which they daub with Cow-dung within, and without, because the smoothness is offensive, and the heat and cold also otherwise would bee too extream.

Plin. hist. l. 21. c. 14. *Pliny* saith, The best Hives are made of barks of trees; a second sort of Rods, and a third sort of Wickers.

Each Country almost hath his several fashion, as well for the matter whereof they are made, as also for the manner and form of their making. In our Country, the Hives principally in use, are either made of wickers, or of straw.

The wicker Hives, if they bee not often repaired, will bee at a fault, and lye open unto Wasps, Robbers, Mise; any of these if shee findes but a crack, or crany, will dig her way in. And the Mouse, unless the twigs bee close wrought, although shee finde none.

The straw Hives when they are old and loaded, do usually sinke on the one side (especially if they take wet) and so break the combs, and let out the hony. Yet I have divers which have been continually used above twenty years together, and never lost spoonful of honey out of them. Hives made of the fashion of a Bell, which they use in *Northfolke*, are not so subject to sinking, but being generally large, they are not fit for single castlings; and besides they are colder than the globous Hives.

All things considered, the straw Hives are the best; and the Bees do best defend themselves from cold when they hang round together in manner of a Sphear or Globe, and therefore the nearer the Hives come to the fashion thereof, the warmer and safer they bee; but of necessity the bottome must bee broad, for the upright and sure standing of the Hive, and for the better taking out of the combs; and the top must rise three or four inches higher than the just form of a globe, whether they bee covered with hackles or not, because they delight to hang in a cone, and work from a point; but chiefly to prevent sinking when they are full of honey, or young Bees, to which the bread crowned Hives are generally subject.

So then that Hive hath the best shape that is likest to an egg, with one end cut off, as wee usually order it when wee eat it. It may consist of twelve strawn wreaths or rowls,

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or more, according to the bigness of the Hive.

Let the three first rowls bee of one magnitude, and compass, and about a foot or somewhat more in the Diameter, the four next above them more large, bellying out a little each beyond his fellow that the combes may bee more firmly fastened: Let the other five by little and little bee narrowed to the center at the top that it may bee pyramidal.

And after this proportion, if the Hive consists of more wreaths or rowls, for this is the shape of a small Hive, I have some consisting of seventeen or eighteen wreaths.

Hives are to bee made of any size between a bushel and half a bushel, saith *Mr. Butler*. I have many Hives containing five pecks which swarm yearly, and last (by succession) longer than those that are hived in small Hives: And although a half bushel Hive will contain a competent stock, yet the swarms for the most part are small, and the castlings of themselves worth nothing; and the Bees that are ordinarily left when they have cast twice are so few, that they quickly miscarry.

However let your Hives bee rather too little, than too great, for such are hurtful to the increase and prosperity of Bees. If the Hives bee too great, the Bees will bee more lazy, working uncomfortably, because they despair ever to finish and furnish their house; but yet if there bee a competent number of Bees, they will work industriously (though the vacuity bee large) and compleat as much with combes as shall bee sufficient for them. But an over large Hive is prejudicial to their swarming.

When you have provided your Hive, clip off, and cut away all the staring straws in the inside, and make it as smooth as you can. The best and readiest way to perform it, is this: First wet the skirts of you Hive, then hold it a turn or two over a blaze of straw, and then take it off, do it a second time, and if need bee a third; and after rub it with a peece of a rubbing stone, such as Mowers use to whet their sithes withall. And so shall you much ease the Bees, they will do it themselves in time, but not without much pains and labour, which might bee more profitably imployed. Howsoever when you have trimmed it as well as you can, yet shall you hear them if you listen in an evening harping like Mise (as if Mise were gnawing on

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every side) and that for divers nights together.

And if it bee an old Hive, though it were musty, yet holding it over a fire several times, will sweeten it. And the Bees will better like in such a Hive so ordered, than in a new one, not purged with the fire.

Mr. Southern. Mr. *Southern*, and others after him advise, that if Bees finde fault with a Hive, and will not continue in it, to pull out the spleats, and put into it a little quantity of Barly, Pease, or Maulr, and let a Hog, eat it out of the Hive, turning the Hive with your hand as hee eats, that the slaver or froth hee makes may remain in the Hive, and then wipe it lightly with a cloath, and having put in your spleats again, hive your Bees in it, and they will undoubtedly tarry. I never had occasion to experiment it, because that I never had swarm that I could not make to tarry in one Hive, or other.

Many rub their Hives before they use them with fennel, or other sweet herbs, and sprinkle them also with Honey and Beer mingled together, Sweet-wort, Milk, or some other sweet liquor, but I seldome use it, but onely as I said before, purifie and sweeten them with fire; and perhaps set them, before they bee used, open in the aire a few dayes out of the danger of rain.

I have scarce (in forty swarms, and more that I have had in a year) hived one twice, or had any return after that they have been hived, except when the Queen Bee hath been wanting.

Having prepared and dressed your Hives, the next thing that you are to do is to stick them. And various are the fashions that are observed, some doing it one way, some another, Mr. *Levit* prescribes this course. Take a stick of Sallow, or Hasel, about the bignes of a mans thumb, let it bee a foot long, or somewhat more, then cleave it cross-wise from one end till you come within a handfull of the other end, and no further, then bend each quarter a several way, cutting off the sharp edges in the midst of every one of them, then may you put the end that is not cleft into the crown of the Hive, and bending every of them a several way, stick them into the side of the Hive, that they may force the upper uncleft end hard to the crown of the Hive; but if the Hive have a little hole in the crown (as many

Mr. Levit ordering of Bees.

straw-

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straw Hives have) then cut the upper end of your said crown-tree where it is not cleft small enough to go through a little way, leaving a shoulder on the inside to stay it: And this is to keep the crown of the Hive from sagging down-wards as they wil do (except your Hives bee exceeding good) when they are heavy laden with hony.

Lastly, Take a small stick and cleave it clean through in the midst, cutting both the parts flat and smooth, and put them cross-wise into the Hive within four fingers of the board they shall stand upon.

But this inconvenience I finde in this manner of sticking, that they cannot bee taken out, but altogether, and therefore the combes will bee much broken, and the honey run out when you take a Hive.

This course I observe; I take a willow stick, about nine, or ten inches long, and (according to the greatness) cleave it into several thin peeces, each spleat I shave till it will bow, then sharpning both the ends; I stick three such spleats in the center of the crown of the Hive, and bow the three other ends to the sides of the Hive (that they stand like so many bows) and there enter them in a triangle. And then after put a strong spleat quite through the middle of the Hive within four inches of the bottome. If it bee a large Hive, I put another cross that (otherwise not) about an inch lower.

That the Hives should have holes quite through them to prevent Spiders webs, or by the wind passing through to blow away any offensive matter, is an idle fancy, yet prescribed by *Florentinus*. Florentinus.

CHAP. XII.

Of Seats for the Hives, and the Bee-garden.

LEt your Bees bee seated not far from your house out of the danger of an eccho; not too hot in Summer, nor in too shady a place in Winter. This counsel may bee profitable to some, but it is of little worth to us where the hottest Sun in Summer if they bee well defended with covers, or a Penthouse Columella.

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hurts them nothing, and the greateſt froſt in Winter (ſuppoſing them covered above, and alſo well ſtopt below) damnifies them nothing. Nay, I have found experimentally that in a row of Hives ſtanding on the North ſide of a long Barn, whoſe height hath intercepted the Suns beams all the Winter, leſs proviſion (almoſt by half) hath ſerved thoſe Hives than would have ſerved others ſtanding alwayes open to the Sun, for coming ſeldome forth they did eat little, and yet in the Spring were as forward to work, and to ſwarm, as thoſe that had twice as much hony (otherwiſe alike) in the Autumn before.

Some Bees will bee late at their work after Sun-ſet, and if when they return they finde it dark about the hive, they muſt lye abroad, if not altogether periſh. Let the door therefore bee ſomewhat to the Weſt.

Let your Bee-garden bee well fenced from Cattel, and as well as may bee defended from winds, eſpecially let them be ſecured from the Weſt and South-weſt winds, which are with us moſt conſtant in the Summer. The time of Bees labouring, *Virgil* thus preſcribes,

Virgil Georg. lib. 4.

Firſt for your Hives a fitting ſtation find
Sheltred from winds rough violence, for Wind
hinders their carriage ---

Mr. *Butler* would have them defended from the riſing Sun, becauſe it invites them to work when the aire is chilly and cold. Suppoſe there were ſuch an inconvenience, which yet I never found, yet where there were many hives, a fenſe on the Eaſt ſide could not defend many if any at all. And if they ſtand on benches with backs or walls behinde them, and a Penthouſe over them, they will bee at work in a fair day two or three hours before the Sun can ſhine upon them.

And for ſwarms, it is beſt to uncover them on the firſt ſhining of the Sun upon them the day after they are ſet up (till they know their ſtation) that they may bee allured forth by the heat thereof, yet when the Sun ſhines hot at noon, let them bee ſleightly covered.

Columella preſcribes that the hives ſtand with their mouths ſomewhat to the Eaſt, that the Sun may ſhine on them in the morn-

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morning, and make them more early to follow their work; but upon experience, I commend the setting of them somewhat to the West, that (being late often at their work) they may have more light (their eyes being weak) to enter their Hives, and also that they be not prejudiced with the Easterly winds, which are cold and hurtful.

Let their entrance be low (because of the Mouse) but longer in Summer, and shorter in Winter, but in Autumn shortest of all, not having passage for above a Bee or two at once, to prevent the danger of robbing both by Bees and Waspes.

Some prefer single stooles as not subject to diverse inconveniences, which Bees standing on benches (as they imagine) are liable to, they are kept saith Mr. *Levit* by Penthouses from the raine, but neither from the heat of Summer, nor cold of Winter, for they stand naked, the heat or cold easily takes hold of them, especially any great and long frost.

Againe, the Wind many times makes a great noyse in the hollowness of those kind of houses, which sore annoyeth the Bees; Mr. *Butler* saith, that many stalles upon a bench in Summer may cause the Bees to fight, as having easie access on foot to each other.

And againe, standing so near, they some time mistake the next Hive for their owne; and againe, in Winter the benches will bee alwayes wet, which looseth the cloome, rotteth the bottom of the Hive, and offendeth the Bees; and lastly, the Mouse at all times hath free passage from one to another without fear.

I have tried both wayes, and found none of these evils that are objected, in setting Bees under a penthouse, and whereas in the first place it is urged, That they are always subject to Heats, and Colds; I answer, that if any are much offended with either of these extreams, they are the Hives that stand on single stools where the Sun penetrates, sometimes through the hackle and the cold winds every way pierce them; and in the Spring, when they begin to work, will blow many of the Bees from their Hives when they would enter in.

And for the noyse that is occasioned by the Winds to Hives under a penthouse, it is less loud and violent than where it hath an open passage on all quarters; but they are more apt to fight on benches than on single stooles. In many years observation, having

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having more Hives upon benches than ever I knew any to have on single stooles, I never had any robbed by his next neighbour, but most commonly (if at all) by some of another Bee-fold.; and whereas it is objected, that in Winter the benches will bee always wet, I answer, that this objection is altogether frivolous, nay false, for the same cause shall wet the single stooles that will wet the benches under covers; nay, they are much more subject to it, for only a driving raine from the South can wet a little at most before the entrance, which the Sun or Wind wil quickly dry, when as they are liable to wet on every side; and for the Mouse, she will more securely visit them where she may unseen (getting under the hackle) eate her way into the Hive, Mr. *Lawson* therefore commends a penthouse.

Mr. *Lawson* new Orchard.

But if any delight in single stooles, let them be of wood rather than of stone, for they are too hot in Summer, and which is worse, too cold in Winter; be careful that they be well covered with hackles, which you must often take off, both to dry the Hives in a Sunny day, and also for fear of Mise and Spiders.

And whereas it is objected, that Bees standing on benches are apt to mistake their Hives, especially the young ones; and if a Swarme return home they will settle upon the next Hives, to their owne and others ruine, and thereby occasion a great loss of Bees; to prevent this, let them stand half a foot at the least between Hive and Hive (it were best a foot) and these miscarriages would be avoyded, and to secure you from Mise, keep a Trap constantly on every Bee board.

Take notice of some advantages that this way you may enjoy, which you cannot so well when they stand on single stools; oftentimes a poor Hive standing by a full neighbour, if they lye our, and the weather be not fitting to swarme, they will (as it were) make a League of amity with them, and first growing familiar, will with their supernumerary Bees (all not being able to work in the full Hive) repleniish their neighbour with bread and mear, whereby they will swarme almost as soon as the best, which otherwise would not have swarmed that year, or very late.

But besides (which is more considerable) you may have much pure Honey without any trouble, or loss; about midde

April

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April in a warme Spring observe what Hives are full, and begin to lye out, and set a Hive with the Combes that the Bees dyed out of the Winter immediatly before, next to such a full Hive, and you shall have them work into it presently, and carry in abundance of Honey; of necessity many of them must have been idle in their owne Hive, there being no roome for half to work; they take this as a retiring house which they will work in, and stay in too, night and day, only keeping an intercourse with their owne, which will swarme never the later, and as soon as by the emission of a Colony there is roome made in their own Hive, they will goe againe to their Leader and leave their provision; If some few stay when you take it, knock them out, and they will returne to their old habitation; I had this last year, one thousand six hundred fifty six, in four such By-hives thus gathered, in eight dayes before the end of *April* neere four gallons of Honey, and the Hives also swarmed in *April*; this Honey was pure Virgin Honey, as white almost as milk.

But if they stand a week in *May* and swarme not, then take the retiring Hive and carry it some distance from the stoole, and knock it on the crown and sides, and they will all goe out to their owne Hive. But if you dare not venter on this course, then drive them into an empty Hive, and the day following knock them out neer their owne Stock, and they will quickly return into it. By this, conjecture how much honey Bees gather in the Spring, but of this more afterwards, so that it is neither for want of roome, or stooles, or wit (as some imagine) to set Hives on benches under a penthouse.

Mr. *Butler* designes to set sixty three Hives of Bees in a plot of ground of fifty foot square (if any, saith he, be so happy to attaine this number, which I have much exceeded) but I would rather advise to set your Hives if you have many, at a larger distance, if you have roome, whether upon single stooles, or upon benches, namely, not above sixteen, or at most twenty in a row (still take notice to set them from East to West) and three or four rodds to the Southward, another row, and so according to your numbers, or at double that distance if you have roome enough, for it cannot otherwise but often fall out, that you shall have many swarmes rise together, or before you shall have Hived the first, especially in a plentiful year, to your no little disturbance,

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and prejudice: Whereas ſtanding at that diſtance, you ſhall more frequently prevent it; and the more, if you have a row of trees planted thick to the Southwards of every row of hives, ſome two or three rods diſtant, where they will readily light and ſeek no further.

Another inconvenience of many hives ſtanding upon ſingle ſtools one before another is, that ſometimes the ſwarms will ſettle on the backles of the hives before them, and if you bee not preſent, and ſpeedily hive them, hazzard the loſs of the ſwarm, and perhaps the ſtock too, as I have found by experience.

Let the ground before your ſtools or benches, for a rod or two at leaſt, bee kept ſhort with often mowing, for long graſs and weeds, much more Beans and Peaſe are prejudicial: for the young weak Nymphs falling on thoſe ſhady places (except the weather bee warm and dry) are in danger to bee chilled, before they can riſe again.

Let it not bee a bare ground, for in Winter it will bee wet, and chill the Bees when they light on it, and in the Summer duſty, and falling on it if they riſe not preſently, but go a little, their feet being dew-clawed, and ſcabrous, will quickly fur, and they will bee ſo clogged, that they will not bee able to riſe at all.

Let them not ſtand above a foot, or a foot and a half from the ground at the moſt, for if they ſtand higher (as moſt ſet them) they are more ſubject to the violence of the winds, for though they do well enough abroad in windy weather, yet when they return home, eſpecially in the Spring, they will bee beaten down beſides the hive (and the more if they ſtand upon ſtools than on benches) and if there bee a preſent ſhoure (the weather then is variable) or the Sun ſuddenly over-caſt, they will quickly chill, and periſh.

That they infect one another with their ſmell if they ſtand too near together (as Mr. *Levit* ſurmiſeth) I never found, nor do I beleeve. And if great noiſes offend them, the higher they ſtand, the more are they ſubject to them.

I have obſerved that Bees flye more frequently to their work Eaſt-ward than any other way, though there bee as good gathering to the Weſt.

Smoak.

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Smoak is very offensive to Bees, let them not stand therefore near a Brick-kilne, Lime-kilne, Brew-house, or where any long continuing smoak may beat down upon them.

Let your Bee-garden, or the ground adjoynin to it, bee planted with all sorts of Plumbs, Cherries, Apples, Pears, Goos-berries, Rasps, Ribes, and beds between planted with all sorts of flowers that they delight in, I will give you a Catalogue of them in their proper place.

The humble Plains, or lowly Vallies are commended as the best place for a Bee-garden. Columel.

CHAP. XIII.

Of the Bees work.

WHen the Earth begins to put on her new apparel, and the Sun runs a most even course between the night, and the day, then most commonly, sometimes before in warmer seasons, the industrious Bee hating idleness more than death, diligently visits every tree and flower that may afford her materials for her livelihood. Hear how an ancient Poet expresseth it.

When forgot had the Earth his poor estate
Of Winter, that him naked made, and mate,
And with his sword of Cloud so sore grieved,
Now hath the attempre Sun all that relieved,
That naked was, and clad it new again,
The busie Bees of the season fain, &c.

Chaucer Prologue to the legend of good women.

Pliny was deceived in the time of the Bees working, for hee saith, they lye quiet in the hive untill after the rising of the *Vergiliæ*, which are the *Pleiades*, or seven stars in the neck of *Taurus*, about the third of *May*.

This incessant labour while the time permitteth, with the three singular effects thereof, working of wax, making of honey, and the feeding of their young. The Poet in few words hath elegantly expressed.

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But when bright Sol hath banish'd Winter chas'd
Virg. Geor. l. 4. *Under the Earth, and Summer light hath grac'd*
The skie again, over the fields and woods
They wander streight, lightly the brinks of floods;
They sip and taste the purple flowers, from thence
(What sweetnes ere it bee that stir their sense)
Care for their brood, and progeny they take,
Thence work their wax, and hony clammy make:

Arist. de hist. Animal. l. 5. c. 19. Bees gather of all things which have flowers (as it were) in a hose or socket, and of all other things which are sweet; but either assertion is too general, as wee will shew when wee particularise what they gather of. *Scaliger* commenting upon him, goes further, and saith, They gather also of bitter, and sharp things, as Radish, and Mustard-seed, but hee mistook himself, for the flowers (which they onely gather of) are neither bitter nor sharp.

Æli. n l. 5. c. 2. The fabrick of their combes is an inimitable excellency, without all rules or compasses do they make their hexangle cells. As soon as they are furnished with a new house, they begin their work.

Arist. de hist. Animal. l. 9. c. 2. They gather not, whatsoever some groundlesly imagine of the Sallow, Elm, or other trees any gummy substance other than wax. Indeed the Hornets, and Wasps suck the sap that leaks from some Oaks, Elms, and other trees, wherewith they temper the dry rossie drosse, that they gnaw off from old decayed posts and pales, of which mixed together they frame their combs.

Much adoe the Ancients make about the foundation of their work, which they conceit to bee framed of some tough and glutinous matter other than wax, and they fancie a triple foundation, for the combes, all of such tough, but pliant, and limber stuff, differing somewhat one from another, and all from pure waxe: The first foundation they call *Commosis*: A second, which they over-lay the former with *Pissocera*; and the third, wherewith they cover the two former *Propolis*.

But whatsoever they fancie, the foundation of the Combs is not any other than ordinary waxe: Take an old Hive wherein some remnants of the Combs have been left sticking to the sides,

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sides, or if there bee none, fixe towards the crown of the hive in several places, little fragments of waxe, and hold the hive a little over a blaze of straw that the waxe may melt and diffuse about the sides of the hive, and such a hive will they more contentedly work in than any other, presently to that foundation of wax, fastening wax new gathered from the flowers (for in some Islands plentiful of Bees, there are no trees for some miles, as Fowlness, &c.)

They fasten the first wax near to the center of the hive, if they bee many, but if there bee few Bees then near the side, they make their combs perpendicular, beginning at the top, and so working down to the bottome; the heat of the Bee (that I say not of their breath) maketh the wax warm and pliable, that at the first gathering they can work, and turn it to their purpose.

They will not onely work artificially the wax they gather into thin hexangles, but blow and soften, and work a solid peece of wax into a comb, as I have often experimented, putting a peece of wax under a hive almost combed to the board.

The order of their work is thus: They fasten their first wax to the hive, and adding more still, make first the middle between the cells, and having wrought a little of the thin bottome, than on either side begin to raise the hexangle cells, and so still descending to the bottome, as some are fully finished, others are but half way, others new begun.

Their combes are placed otherwise than the Wasps, for the Wasps hang theirs one under another, and the Bees theirs one besides another, beginning still at the top, and at that distance that a Bee may reach from one to another. And usually supposing them to stand with the entrance into the hive Southwards, they fasten and order them so, that in the breadth they are from East to West, thereby better securing themselves from cold.

Their cells are made six-quare, according to the number of their feet of that length and wideness that each of them may easily contain a young Bee. More particularly they make their combes with such artificial prudence, that they seem to out-goe *Archimedes*, for the wise Bee is not ignorant of Geometrical inventions, all her cells are hexangles, and have equal sides, Basil Hexem. Homil. 8.

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not leaning by courses right forwards, that the lowest being joyned to the empty one, may not be pressed or prejudiced, but the angles of the lowest hexangles may be a basis and support for that that leanes upon them, that they may securely hold up, and bear the burdens put upon them, and the Hony may be contained severally, and apart in every cell.

And againe, the Bees contrive their Hony-cels both wisely, and artificially, for distending the Wax into a thin membrane, they frame together many and numerous cells, that by the frequency of the binding or knitting of the small cells one among another, there may be a stay or prop for the whole work; for every cavity or cell takes fast hold of his fellow, being separated by a small division from it, and all joyned to it.

And lastly, these pipes, or cells, are twice or thrice arched, and framed together like the rafters of houses.

Nicetas comment. in Greg. Nazian. orat. 43. to. 2.

Or they thus make their hexangle cels, which with a divers and opposite order answer one another, for some are placed at a right line, others are instead of foundations to them that lye upon them, and staies for the hony, both for the elegancy, and also the security of the work; so wisely and skilfully doth she fabricate her Store-house, for drawing out the Wax into a thin skin, or membrane, she makes thick and continued cavities, so as that thick composition of small things among themselves doe sustaine and underprop the whole work, for every cell doth joyn or hang to his fellow, being divided by a small partition, and also (as before) conjoyned together.

In a word, the cells are so framed that they have two or three floores or rafters, for she is affraid to make but one through the whole cavity, lest the hony pressed down with the weight, should sink to the external part.

Now all the cells in every Combe are hexangle, and equilateral, not leaning straight forth one to another, lest the lowest parts joyned to the empty ones should be too much burthened, but the angles of the lower hexangles are instead of a basis, or prop to the superiour. After this fashion the Bee frames her work, varying right lines with angles.

Elias Cretens. Antist. com. in Greg. Nazian. orat. 2. de theol.

And thus saith another, where had the Bees such studious industry and workmanship, that they should after such diverse manners knit together their Combes by hexangle Pipes turned

one

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one against another, which connexions made wisely, and with much cunning, doe hold together by hexangle pipes, which pipes are the long and concave Store-houses for the Hony; now these are opposite to, and turned one against another, for some are placed straight, others on the contrary are obliquely stretched forth on the bottomes of them which are drawn forth right, which doe afford their sides for the pipes that hang over, instead of a foundation, and as it were a shore, whereon the hony may rest.

Now what *Euclid* busied in representing lines which are no where, and anxiously labouring in demonstrations can imitate them? The frame and manner is most curious, with holes on both sides of the Combes, many hundreds, and yet they are none of them just one against another, but placed triangular one among three, and that most neatly and artificially, which argueth their feeling to be good, for they doe all in the dark.

Each hexagonical bottome of one side, answereth to three third parts of the hexagonical basis of three contiguous cells on the other side, meeting all in one angle right in the center of the opposite bottome, as in this forme; which is so artificial, as well for strength and beauty, that no Schadon though the thin bottome of his cell should faile, can break thorow into a cell of the other side. He that seeth this, seeth he not a wonder? Mr. But. Fem. mon. c. 6.

How much Wax they bring at once doth appear by the new Swarme, whose first weeks work is spent chiefly in building Combs, wherein they are so earnest, that it falleth out with them, as it is in the Proverb, *The more haste the worse speed*; for part of many of their burdens doe fall from them before they can fasten them to the combes.

You may see great store upon the stoole by the skirts of the Hive, like unto the white scales which fall from young Birds feathers (but whiter and brighter) and therefore some have imagined that they also are scales, which the young Bees doe likewise shed from their wings; but put you some of these parcels together, and you shall quickly be resolved of that doubt.

The Swarme when it begins to work falls low towards the bottome of the Hive (in appearance filling it) that there may be a vacuity and hollownesse above, that those that work (for at first

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first all cannot) may neither be crowded, nor disturbed, but as the Combes descend, so doe the Bees ascend, and after a week or ten dayes will be all above.

Now to say something of their gathering of Hony, which they fetch in little or much nine moneths in the year; this is of two sorts, the one pure and liquid, called therefore by some *Nectar*, as the other which is gross and more solid *Ambrosia*, and both of them are the Bees food, but in several seasons.

The gross hony *Sandaracha*, or Bee-bread, is gathered by their tongues, with the assistance of their fangs, from whence it is conveyed by their fore-leggs to the thighs of their hind-leggs, and that so nimbly, that unless you have a quick eye you cannot perceive it. In the Spring, when the air is colder, and the Bees duller at their work, it is more visible: namely when they gather off the Aglets, or Catkins, of the Hazel, or the Willow a little after.

Many out of curiosity have supposed, that they might be able to observe the Bees work if they had a transparent Horn-hive, as a certaine Consul in *Rome* had, or a clear Glass-hive; but the vanity of this opinion will quickly appear to any intelligent and rational man; for imagine the Hives were more transparent than Chrystal, unless the Bees also, and all their work too were transparent as well as the Hives, this cannot be; put an opacous body into the hollow of it, your sight is dulled and darkned, but more when they once begin to frame their Combes, the foundation of their work, which they frequently compass round about; and howsoever such Hives would not be profitable, for they are subject to violent heats and colds, and therefore earthen Hives were justly condemned by the ancients.

Guliel. de Conchis.

But if any be desirous to satisfie himself, as much as is possible, I will direct him in a more certain way, often experimented by me, yet I say not, that I will altogether undeceive his expectation.

Let the board or plank whereon the Bee-hive stands have a small hole, or cleft thorow the middle of it (bigge enough for a Bee to goe through) or let the Hive stand a little over the board or stoole, and when the Hive is full you shall ordinarily have them work Combes to the bottome of the board under the Hive; I have had under one hive six or seven Combes about a foot

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foot long a peice, wherein they bred their young, laid up their hony and Bee-bread as in the hive; and although they were in the open air, yet was I thereby little the wiser, only sometimes in a colder season I have observed them blowing, and working of the lower part of their Combe, but was not any thing at all enabled to understand the generation of their young, or other curiosities which were performed in the inmost combs, and within themselves (except the Bees and their work too, had been transparent) they still some of them encompassing their work; and therefore except you can with your eye penetrate a solid body, you will conceive thereby little of their work (only sometimes on the edges of their Combs) and much less in a Glass-hive.

They unload into the empty cells the Bee-bread which they have gathered for food for themselves, when they cannot goe forth to work, and also to feed their young, but if it continue any long time uneaten, it wil grow dry, insipid, and sower, and thereby as tastless, so useless, and oft cause the Bees to forsake their Hives (as some suppose) but this is never the chief cause of their departure, but rather paucity and fewness of Bees, having over-swarmed, or else the loss of their commander. For, hive a swarm into old combs where is much stopping, yet shal you finde that they will thrive wel, for they wil draw it out of the cels with their fangs, and carry it forth. And let the combs be never so old, except they have taken wet, and so be rotten and crispie, they wil like well of them, only if they be very old, they will doe as Masons doe with old stone buildings, take down the out-part and work it again with new materials, whereby it shall be as good as new, and they continue as long, and as well in them, as if they had been put into new combs.

Into old combs (after nine or ten years standing the Bees by casualty dying) I have hived little or late swarms, which have continued in some of them ten years more.

Sometimes my owne, sometimes my Neighbours Bees have trimmed up such Hives as they have found standing (the Bees being dead) and have gone of themselves into them, and thrived better than others hived into new hives, or new combs; so that blackness (as it is commonly thought) is not an infallible signe of a faulty hive, for the combs have successively sundry colours.

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The first colour is white, which in a good Hive before the end of Summer will turn to a light yellow, and by the beginning of the next Spring, this light is changed into a sad colour, and so by degrees it becomes brown, and then black, but not in all parts of the Hive alike, for the combs will bee black before, and brown in the middle when they are yellow, if not white in the backward combs. And this alteration of colour, is caused by the heat of the Bees, who lying for the most part before, do soonest discolour them; but the blackest combs (tried or melted) will turn again to yellow.

It is not amiss (especially if the Hives bee poor) to cleanse away in the Spring the dross and filth that the Bees have contracted all Winter, when they could not go abroad; but for fuming of them, as some require, I never saw any cause, nor found any profit in many years that I have been conversant among them.

To seek (as *Varro* requires) if there bee divers rulers, because divisions would make them lazie, is a ridiculous, if not impossible task: They kill after the last swarm all of the blood Royal, and in the Spring early breed new, that they may bee ready to go with the first swarm.

The Vulgar when they see the Bees go home laden with Bee-bread, suppose they carry wax, and so they call it, but if you taste it, you will easily resolve your self.

Besides, if you would coagulate it together, with the heat of your fingers (as you may wax) you cannot, but shall finde it crumble, and not stick together like wax. Put it into the fire, it will not melt like wax; besides, it is of divers colours according to the quality of the flowers, or plants whereof it is gathered, so that by the colour with a little observation, you may say of most of the Bees, when they return with it, where they have been gathering.

Taste it when it is new gathered, it is sweet, and not unpleasant, but not so sweet as honey.

And that it is not wax, take notice of an old stock into which they carry plentifully of it, and yet at the end of the year there is no more wax (if so much) then there was in the beginning. Whereas a swarm will sometimes work down half their hive in a week, and yet you shall see them carry little of it if any at all.

And

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And the reason that the old stocks carry in so much, is, because they have many young ones to feed, whereas a swarm for the first ten dayes, ordinarily have not hatched much spat, or young brood, and they feed for the most part abroad, and therefore need little of it in the Hive.

The liquid honey the Bees suck or gather with their tongue, whence they let it down into their bottles, which are within them like bladders, each of them will hold a drop at once; you may see their bellies strut withall. Many think because they see nothing on their thighs, that they come home empty, but they are better, and more heavy laden than the other.

This sedulous diligence and indefatigable industry of the Bees is most evident and eminent in the Spring, after they have been long confined to their hives with the Winters frost and cold, but being set at liberty by the Suns warmer beams, they speedily scoure over hills and dales gathering of every blossome, and flower as greedily as the griping Usurer graspeth gold, which diligence of theirs, is notably expressed by a Modern Poet.

Quales vere novo fisulæ sub collibus Hyblæ
Vallibus, aut riguis late fragrantis Hymeth
Exercentur apes, flabulis ubi pinguibus agmen
Prodit mane novum, & cœlo bacchatur aperto.
Hæ variis populantur apes, Tymbræque laborant:
Illa Apii lachrymam, & graveolentis Centaureæ
Narcissique legunt florem, Casiasque rubentes:
Cætera dum legio tectis ascripta, tenaces
Suspendunt cæras, & mella liquentia fundunt.

Ælius Julius Creta. Eidyl. 3.

Thus in the Spring the diligent Bee spreads forth her wings, yet stiffe as it were with the Winters cold, and with haste leaving the hive, flyes to the flowery Meads and pleasant Gardens.

Greg. Nazian. orat. 43. t. 2.

But for your further delight, consider the Bees labour, in the words of one of our best English Poets, yet somewhat altered, because not intended by him for this purpose.

The Woods, the Rivers, and the Meadows green,
With her air-cutting wings, the measures wide,

Spensers Minopomos.

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Ne doth shee leave the mountains bare unseen,
Nor the rank grassie Fens delights untri'd;
But none of these how ever sweet they been,
Mote please her fancy, nor cause her t'abide
Her choiceful sense with every change doth flit,
No common things may please a wavering wit.

To the gay Gardens her unstaid desire
Sometimes her carrieth, to refresh her sprights,
There lavish nature in her best attire
Pours forth sweet odors, and alluring sights,
And art with her contending, doth aspire
T'excel the natural, with made delights.
And all that fair or pleasant may bee found,
In riotous excess doth there abound.

There shee arriving, round about doth flye
From bed to bed, from one to other border,
And takes survey with curious busie eye,
Of every flowre and herb there set in order;
Now this, now that, she tasteth tenderly,
Yet none of them she rudely doth disorder
Ne with her feet their silken leaves deface,
But pastures on the pleasures of each place.

And evermore with most variety,
And change of sweetness (for all change is sweet)
She casts her taste to satisfie
Now sucking of the bloems of herbs most meet;
Or of the dew, which yet on them doth lye
Now in the same bathing her tender feet.
And then shee pearcheth on some branch thereby,
To weather her, and her moist wings to dry.

And then again shee turneth to her play,
To spoyl the pleasures of that Paradise;
The wholesome Sage and Lavender still gray,
Sweet Carrowayes, and Cummin good for eyes,
The Roses reigning in the pride of May,
Sharp Isop, good for green wounds, remedies;

Fair

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Fair Marigolds, and Bees alluring Thyme,
Sweet Marjoram, and Daysies decking prime.

Cool Violets, and Burrage growing still,
Embathed balm, and chearful Galingale
Goodly Tulips, and breathful Camomile,
Dull Poppy, and drink quickning fetwale,
Vein-healing Verven, and Head-purging Dill,
Sound Savory, and Basil hearty hale.
Fat Cole-worts, and comforting Strawberry,
Cold Lettice, and refreshing Rosemary.

And what so else of vertue good or ill,
Grew in the Garden, fetche from far away,
Of every one thee takes and tastes at will,
And on their pleasures greedily doth prey, &c.

CHAP. XIV.

Of the swarming, and hiving of Bees.

BEes breed in *May*, when there is plenty of honey-dews; Wasps in Summer, when the fruits begin to ripen. It is true Bees breed in *May*, but their chief breeding is in *March*, and *April*. And although the Wasps appear not in great numbers untill the latter end of Summer, yet they begin to breed in the Spring. Dr. Harvey de partu.

The old stocks having bred in the Spring, and with a new supply repleniſhed their hives, they presently prepare to send forth a Colony or two (if the weather prove seasonable) out of every good stall.

In extraordinary dry and windy times, many, though they bee full, yet they will not swarm at all. For having waited long for an alteration of the weather in vain, and the yeare wearing away, and they by lying forth under, or about the sides of the hive, cooling themselves, and being well provided for, are loath to leave their labours to go anew to labour.

Sometimes it falls out, because they have no Commander

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ready. I once had a very good hive full, and multitudinous with Bees, and yet never swarmed in many years, I was resolved to let them alone, to try whether they would ever swarm; in the eighth year they swarmed twice, and also other years after, what might bee the cause of their long delay, I cannot certainly assign.

The swarm consists not of younger Bees, then the stock, for there go forth both old and young, and therefore *Aristotle* was deceived, who said that the swarm consisted of young Bees, and was not contradicted by *Scaliger* commenting upon him.

Arist. de hist. Animal. l. 9. c. 64.

The swarm parts not into several companies, but when there are more Queens than one. Some Drones go along in every swarm, but not many, seldome a dozen: And therefore whereas some lay it down as an infallible rule, That those swarms that have not many Drones will not thrive, is not alwayes true.

Many times the weather proving stormy, and cold, the Drones will all bee starved, when as the Bees will supply themselves by going sometimes (though seldome) abroad. Nay the Bees often in such seasons jealous of their own safety (and knowing them to bee great devourers) will kill them; and yet the weather proving seasonable, afterwards have thriven and prospered well that year, but perhaps they had a conceptive power by a masculine vertue from the Drones before they swarmed.

It is impossible to determine the precise time of the year when Bees will swarm, but by the forwardness of the Spring, and warmness of the weather you may probably guess.

A warm, calm, and a showring Spring causeth many and early swarms; but it is to be supposed if stormy, cold, and close weather follow, not a great while together, immediately after. I once had many Hives (the beginning of the Spring being milde and warm) very forward, so that by the end of *March* they began to lye forth.

And although the weather within a week of *April*, did somewhat alter, yet (being full of brood within which came daily to perfection, they lay forth in abundance by Mid-April, but the Spring continuing tempestuous and cold untill a week in *May*, ten of the very best wholly perished, having many

mouths

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mouthes and no meat, and not being able (because of the cold) to goe forth to gather any, in *January* before, I am confident the worst of them had not less than three quarts of hony.

Now those that were poor and weak began not to breed so early, and though they were not so well supplied, yet had they few mouthes as they had a little meat, and endured the extremity, and swarmed that year, but somewhat later than ordinary; the first sort lying forth without the Hive I could not securely feed them, which otherwise I would have done, when I perceived them to perish.

Sometimes also in regard of the uncertainty of the weather, early swarms are not the best; in the year one thousand six hundred fifty two, I had twenty swarms before mid *May*, and many more after, and of all, but one survived until the next year, for the year was so dry that by Midsummer there was scarse any flowers, and they yeelded little hony, except in the Woodlands, where the Bees among the moyst and shady places found better provision.

Many times *May* swarms prove not so well as those that are cast in the beginning of *June*, the Wind oft times continuing high and cold, and the season close, so that without a little refreshing many swarms are like to perish.

If a swarme by bad weather be checked, and hindred in their work the first week, they will seldome work contagiously all the summer following.

Dry weather makes plenty of hony, and moyst of swarms, so that when a dry summer follows a moyst spring, the Bee-folds are rich, but if the Summer be also moyst, the increase of Bees will be great, but because of the scarsity of hony, this increase will prove a decrease; the more swarms you have at the end of summer, the fewer stalls shall you have at the beginning of the next, for except some very early swarms, and some good stocks which cast betimes, or not at all they will all dye for hunger; and the reason is, that the weather keeping them much in, they can doe nothing but breed, and when they goe abroad, bring in nothing but Bee-bread and water, wherewith they feed their young, but can finde nothing to lay up in store; so that moyst weather gives them two causes of swarming, plenty of Bees, and penury

Arist. de Hist. animal. lib. 4. c. 22.

Mr. Butler, Fem. Mon.

penury of Hony; the one makes them able, the other willing, and then neither Winds, nor Clouds, nor Rain can stay them, whereas in times of plenty it is otherwise.

Arist de Hist. Animal. lib. 9. c. 40

Before they swarme some daies, they will by a peculiar and distinct voyce, make it known throughout all the Hive, as in the dislodging of an Army by the sound of Trumpets, proclaime, pack up, and be gone; so that as a presage of their swarming, there is a peculiar sound heard two or three days before.

Virgil.

——— *And then a voyce*
Is heard, resembling Trumpets winding noyse.

Mr. Muff. Theatrum Insect.

Mr. *Mouffet* mistakes this place strangely, and applying it to the Bees, saith, When the Bees for the Queens tyranny will forsake the Hive (which falls out at the Greek Calends) there is a peculiar and solitary voice, as of a Trumpet, heard two or three days before: when therefore they are ready for their flight, away they goe, and if the Tyrant whom they forsake follow them, they put her to death.

But this voyce is not at all, or but some few hours before they goe forth with their first Colony, it is true indeed always of the after swarms, but by the way, if they hear not at all, (which *Aristotle* elsewhere denies) to what purpose were this call, or proclamation to make ready to be gone?

Varro de re rustica, lib. 3.

The signes of the first swarms are somewhat uncertain, but lying out, about, or under the Hive, in the mornings and evenings only, is a very probable signe of swarming, whereas to lye out constantly, is a signe of not swarming.

When they will presently swarme you may sometimes know, by their gathering together without at the door of the Hive, and not only upon the Hive, but on the stoole also, where when you see them begin to hang one upon another in swarming time, and not before, and to grow into a cluster that covers the stoole in any place, then be sure they will presently rise, if the weather hold; but commonly some few doe first fly forth to and fro the Hive door, with a greater noyse than ordinary, and so allure out more company unto them, and when by this means they have got out a pretty many, the noyse made by them is more smart and vehement, when they begin to dance before the Hive, and making many circling motions turning from, and yet againe returning to the Hive, with delightful melody singing a loath to depart,

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depart, invite all their Sisters to hasten apace, and wait upon their Queen now on her coronation day.

Their murmuring small Trumpets sounden wide,
Whiles in the air their clustring army flies,
That as a cloud doth seeme to dim the skies.

Spenser Faery, Q. lib. 2. cant. 9.

When Bees lye continually forth of the Hive, they usually swarme late, sometimes not at all that year, the reason thereof is, because the Hives being ful of Bees, and therefore very hot, the Bees to refresh and coole themselves lye abroad under the Hive, or upon the sides thereof, whereby the Hive never seemes over full; and they having used a while to lye forth, finde no inconvenience from their multitudes, and are loath to forsake that plenty which they have painfully gathered.

If they begin a Combe under the board, it is a sure signe of not swarming; sweep them down that hang under, and imbitter the place, and gently drive them into the Hive with a brush of wet stinking weeds, or smoke them in, as you shall be more fully informed afterwards. But doe what you can, some Hives wil not swarme at all, or not a great while, perhaps they want a Leader.

Always choose a Hive answerable to the swarme, a forward swarme if great, may be put into a Hive that containes somewhat more than three pecks, but if it be a prime swarme, in the beginning of *June*, into a Hive containing three pecks; if at Midsummer, into a Hive somewhat less, but I like no Hive that holds not somewhat above half a bushel.

By this time the swarme is setled, goe presently therefore to hive it (having Hives of all sorts alwayes prepared) for fear of rising again, or of others coming to it.

If it be in the heat of the day, and the Sun shine upon it, it will not stay long, if it be provided of a place (hive or tree) as some are before hand; presently after they are setled, and all their company gathered together, they wil uncluster, rise againe, and be gone, and fly forth right thither (not as at other times uncertainly) and wil not be staid by any course you can take. If they be not provided before-hand, as soon as they are gathered together, they designe, or empower some of their company to

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espy out one, and if they return with the news of it before swarming time bee past, for that day (and they yet unhived) they will presently uncluster, and away, otherwise they will hang untill the next day. They therefore deal indiscreetly, that let their swarms hang untill night, losing thereby many, and hindring them in their work; for as soon as they are hived, if it bee not late in the afternoon, they will presently ply their work, and sometimes make a comb a handfull long before night, and fill much of it with honey, as I have often found, when I have united them to another.

And besides by long hanging, they will bee wonted to the place, that for some dayes after, they will hanker thereabouts, and neglect their labours.

And where there are many Hives, there is great likelihood of others rising, and then if they bee within hearing, they will flye all together; bestir you therefore to hive them presently; and if you espy any other to arise before you have done, stop them up with a cloath (and when you have dispatched, let them out) but if you have finished before they come forth, or come towards you, cover the first with a sheet untill the last bee settled elsewhere. But if they flye about the covered Hive, seeking to enter there, set down a prepared empty Hive by it, and they will often go in of themselves.

But if two prime swarms rise together, then there is no prevention, but for the most part they will settle together: Hive half of them into one Hive as near as you can guess, and the remainder into another. And if the Queen Bees be divided, they will continue severally, otherwise, will go out of that Hive where is no Queen, into the other. When they are all entred into one, knock them down into a fan, or upon a very broad board, and set two Hives over them, having first laid sticks along in the fan to bear up the Hives a little from the bottome, that the Bees may on every side easily enter in, and with a wing or brush of weeds, sweep some to one, and some to another, as equally as you can. But if notwithstanding all your endeavours, they will go to one Hive, then fetch a weak castling, and knocking down near half upon the fan, carry the other away the distance of a rod, or more, and set the castling over those in the fan, and so shall you have two good Hives however.

If

If your swarm light upon a bough, shake them in gently, and set them upon a board or fan, underneath the place, having laid two sticks first (near an inch about) about half a foot asunder, to rear up the skirts of the Hive, that no Bees may bee crushed by the Hive, and the Bees may more readily enter. And if any rise as (usually some will) shake them down, and lay a handfull of May-weed, Wormwood, or other wet herbs in the place where they setled, and they will quickly remove, and goe to their fellows; but if they light very high, then carry up a cloath with you, and cover them that you have in the Hive, and bring it down with the mouth upwards, and set them below (on a fan as before) and fetch the remainder in another empty Hive covered, and when you are down, knock them out by the side of the former, sometime you must do it, a third, nay a fourth time before you have all.

If they light upon the body of a tree (they will bee troublesome to hive) you cannot take half of them in at once, but sweep with a wing or brush of weeds, as many as you can, and set them underneath the place, and fetch the remainder, as before.

Sometimes it will not bee amiss to saw down gently the bough (when you cannot otherwise well come at them) where they hang, fastening first a little line to it, and so softly let it down, or else bring it down in your hand. I have brought down many, and hived them with ease below. At other times when they have been very high in the middle or out-side of a tree, I have carried up a fan, and fastened it by the ears underneath the swarm, and so hived them as easily as if they had been near the ground, setting them in the fan, laying sticks first in it, as I prescribed before. And in the evening without any trouble, fetched them down, and set them in their place.

The manner of hiving is very various and manifold, by reason of the many and different circumstances of the lighting, or pitching, that it can hardly be taught by rules, but is rather to be learned by use, and experience, guided with reason and discretion.

If they settle on a dead hedge, or on the ground, set the Hive over them, under-propping it if there bee cause, and with a handfull of wet weeds stir them softly underneath, and they will

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go up; and to allure them the sooner, anoint the edges of the Hive with a little honey, and sprinkle a little within it.

It will not be amiss to shred, and order here and there some boughs of the trees in, or near your Bee-garden, that they may hang out, as it were from the rest more opportunely to entertain the Bees when they swarm. Yet in places where are neither trees, nor dead hedges, they will settle upon pales, nettles, mallows, they will refuse nothing they readily meet with; sometimes on the very grass: Thus in the Island of *Fowlness*.

Mr. Butler Fem. Mon. c. 5.

To cause stocks that lye out more speedily to swarm, divers rules are prescribed. To keep them cool by watering and shadowing of them, and inlarging of the door, to give them aire (alwayes provided that there be no back-door in the Hive) I have with a contrary course occasioned their swarming, first rubbing the bottome of the stool against the door well with wormwood, or the juyce of Elder, and all the sides about the door, and laying wormwood, or May-weed also, close to the mouth, and also before, above the door; which being done, I have in the heat of the day taken off their cover, so that not being well able to continue in the Hive, nor yet to rest under it, nor on the sides of the Hive, they have presently swarmed.

A second way prescribed by Mr. *Butler* is, when they have lain out (although they have had fit weather two or three dayes) then the next calm and warm day a little before noon (when the Sun shineth, and you see no clouds coming to hide it) put in as many as you can with your brush (it is better to smoak them in) and sweep down the rest, not suffering any to cluster again: These rising in the calm heat of the Sun, will make such a noise, as if they were swarming, which their fellows hearing, will perhaps come out unto them, and begin to swarm. It is but a perhaps, for I have seldome seen this course successful.

When all hope of their swarming is past, in some evening while it is yet light (saith Mr. *Butler*) holding a Hive under those that lye out, cut them off with a tight thred held streight between two hands, and carry them to an over-swarmer that you would mend, knock them down on a table close before his Hive, into which, because they come without a Prince, they are quietly

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quietly admitted, and quickly united under one Commander: Stay there, I have often tried this course, but without success always; for though they bee without any great conteſt admitted and continue there that night, yet the day following, they will return to their old Hive.

See here the difference between a voluntary emiſſion, and a compulſive; when they go forth with a Leader, you may put them any where, for they have by a voluntary departure, excluded themſelves from their former ſociety, and to return thither again, except it bee in a ſhort ſpace, is capital: They are reputed as enemies, forſaking their own Commander, and going away with another Leader; but if their Princeſs in a ſhort ſpace return with them, there is no queſtion about their admiſſion; but if by a wile they are taken from their own company without a Leader, they will return back again do what you can, except you carry them ſo far that they know not the way.

Mr. *Butler* for ſuch Hives as have not ſwarmed before Midſummer, directs this courſe, to double the ſtall, by turning the skirt of the Hive upward, putting the crown into the rim of an old Pale (or the like) well ſtaked about, that it may ſtand faſt, and ſetting an empty prepared Hive faſt upon it, then dawb them (in the middle where they are joyned) round, onely leaving a paſſage even with that of the old ſtock, and they will aſcend into this, and breed, and work as well as in the old. And in the end of *Auguſt*, you may drive them all into the new, and take the old for your labour.

This courſe ſeems plauſible upon the firſt propoſal, but upon frequent trial, I have found it to little purpoſe: For the Bees having many young ones in the old Hive, and much meat, will not aſcend, but as they are neceſſitated for room, and then work their combs to the old, upwards, and not downwards from the top of the Hive, newly ſet over them; ſo that by parting of the combs which will not bee without trouble, you may take ſome little profit of the combs new wrought, but muſt continue the old Hive to ſtand ſtill, except you mean to take all, I never found any to have wrought above half way upwards, ſo that having no foundation, but the old combs, it is impoſſible to ſet down the new Hive.

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Bees will swarm any time of the day, between eight in the morning, and four in the afternoon, but the chief time of swarming, is between eleven and one. Many stocks when they are disposed to swarm, will rise in a cloudy season often before the Sun shine upon them, I have had some by eight of the clock; but chiefly in a hot gleam, after that a showr, or a dark cloud hath sent them home, but in hot and dry weather it is not so. The swarming months are *April*, *May*, *June*, and *July*; rarely, though sometimes in *August*.

To judge by the time of their swarming, which will thrive, is very uncertain, because of the variable weather that often follows after, for being checked a little, and discouraged at the first, for a week together, they will scarce work kindly all the year after, so that many (though less, and coming a month after) not hindred at all by ill weather, will bee better than those at the end of the year. And another cause why forward swarmes thrive not after foul weather, is, because they are very ventrous abroad, and by the stormy winds, and unseasonable weather many are diminished, and thereby their increase exceedingly retarded.

Signes of after swarms are more manifest and certain, for about ten dayes after the first swarm is cast, sometimes a little sooner, sometimes a day or two later, the next Princess will beginto tune in her treble voyce a mournful and begging note, as if shee did pray her Queen mother to give her leave to bee gone, unto which voyce if the Queen vouchsafe to reply, tuning her base to the young Princess treble, as commonly shee doth (though sometimes not intreated in a day or two) then shee consents, and the third day after expect a swarm. The first day after the grant, how fair soever the weather be, they will not go, and not ordinarily on the next day, except it bee very fair; but on the third day, though it bee somewhat close, and cloudy weather, yet sometimes the weather proving very cold and windy, I have known them stay five or six dayes after liberty granted.

The evening before they swarm, the young Princess goes calling from one part of the Hive to another, sometimes shee is before, sometimes behinde, sometimes above, but still calls, and resting a while between, shee still renewes her calling. In the morning

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morning before, ſhee often deſcends to the bottome of the Hive, with ſhriller and thicker, longer, and more continued notes than at firſt, that none may plead ignorance, but all know, and acknowledge, there is a new Princeſs, and bee ready to attend her when ſhee takes poſſeſſion of her Royalty, dealing herein (but that ſhee is her own officer, and it is no diſparagement, for the Queen mother is her continual aſſiſtant) as Princes on earth that come newly to ſucceed in their Dominions, they make it known by ſound of Trumpets, and Proclamations, in the moſt eminent parts of the Kingdome.

But take notice by the way, that ſometimes the Commonalty (knowing beſt their numbers within, and the ſtate of the weather abroad) not thinking it good to make a diviſion, will after leave obtained, kill the young Princeſs, and all the infants of the blood Royal, but this is not ordinary.

If the Queen mother after a long intreaty be ſilent, then there is no way but one, ſhee muſt dye, and all her Allies. As the Queens voice is a grant, ſo her ſilence is a flat denial: The Proverb here hath no place, *Qui tacet, conſentire videtur*, for without this concent, there is no conſent. Mr. Butler. *ſilence gives conſe*

Sometimes a third, nay a fourth will ariſe after a ſecond, if the prime ſwarm bee broken; but all (ordinarily) within a fortnight. I have known the laſt (but rarely, and in bad weather) ſeventeen dayes after the firſt.

When the ſwarm is up and buſie in their dance, it hath been an old and common practice, for want of other muſick, to play them a fit of Mirth, on a Baſon, Warming-pan, or Kettle, to make them more ſpeedily light, and keep them from flying away, but this (though ordinary) yet is needleſs in this reſpect, for they will ſettle of themſelves, except they have choſen a place before-hand, which is very near. And then when their company is all out, they will flye directly thither, and your ringing and tinging, will prevail nothing to perſwade their ſtay.

This benefit there is of ringing, that if you have neighbours near, you that keep Bees, you may give notice thereby to prevent wrangling, if ſome of theirs ſhould riſe at the ſame time.

Mr. *Levit* opinion is, That tinging is ſo far from preventing

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venting their flying away, that it is often a cause to return them back into their Hive, if not to drive them quite away, for they are amazed as it were, and confounded with the unwonted and clamorous noise.

Mr. *Remnant* dislikes ringing before the swarm bee quite out of their Hive; but if they be on the wing ready to flye away, then prescribes to make the greatest sound you can to prevent it, as also by throwing up dust, Hogs-dung, or Cows-dung to disturb, and trouble them.

Aristotle doubting whether Bees hear, therefore questions whether they take pleasure in the sound because they hear, or for fear, because of the reverberation, and tremor of the aire?

Claudian de 6. Consul. Honorii. That the ringing of Bees anciently practised, was for the former reason, the Poet implies, saying, The Bee-master ringing on his Bason by the shrill sound, labours to recall the Bees when they are flying away; and *Virgil* before him, and before him *Aristotle*, *Convocari eas in alveum aiunt*, they did cause them to return.

Mr. Mussee Theatrum Insector. They flye faster or slower, according to the ringing, if hee strikes apace, they hasten away, but if hee beat leasurely, then they flye slowly.

But if they will not be stayed, but hastening on still, go beyond your bounds, the ancient law of Christendome permitteth you to pursue them whithersoever, but our common Law is more uncivil, and yeelds no such priviledge, for if your Bees bee out of your ground, your property is lost, if your neighbour bee not more courteous.

Many directions have been given, to arm them that hive the swarms to escape danger, but except they be about the body of a tree, or setled very high, you may without any cover, or defence securely hive them, otherwise get on a paire of Mittens, or wollen Gloves on your hands, and a thin Cypress over your head and face, and then without any fear, you may safely venture among them.

Second swarms after they are all forth of the Hive, will usually flye about (before they light) longer than prime swarms, the reason is, the Bees knowing that multitudes best thrive together, and they by the smalness of their murmuring sound, being privy

to

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to their paucity, do by a continued flying about, allure as many as they can to come forth to augment their numbers.

Sometimes swarms will settle in two or more clusters, a little distance one from the other (seldome prime swarms.) Now usually the cause is, because there bee divers Commanders, and each gets a company. Hive the greatest cluster first, and set it down towards the other, then into an unspleated Hive, shake down the other, and when they bee all in, knock them down close by the first, and they will go together.

Second swarms except they bee early, and out of large stocks, seldome thrive alone: Therefore unite two or three together, and so they will bee as good as a first swarm; you may do it thus, Having hived that swarm that you intend to put to another, as soon as it begins to bee dark, take a fan, and laying a couple of sticks on it, set your first hived swarm on them towards one end of the fan, and then fetch the other, and between your hands clap the Hive hard on the one side, holding it close to the other, most of the Bees will fall down at the first clap, but reiterate your knocking, and they will all fall down, and if they enter not presently, stir and guide them to the Hive, with a brush of weeds, and such as go any other way, sweep them to their fellows, and they will all quickly, and quietly ascend. Within an houre or two, you may (for the most part) set up the Hive again in his place. I have not lost forty Bees in uniting twenty swarms, besides the Commanders, which of necessity must perish.

Swarms after they bee well setled, seldome return home again (if you let them not hang too long in the heat) and the chief cause of their returning at any time, is the miscarriage of the Queen Bee, who cannot well use her wings, being (perhaps) never forth of the Hive before, and assaying to flye, falls besides the stool, sometimes flyes further, but being quickly weary falls short of her company.

You may easily know if it bee thus, for as soon as you have hived the cluster, the first inquiry they make is for their Leader (whose coming while they hang, they did anxiously expect) but now being hived, and missing her, they presently discover it with a mournful murmuring, sometimes bewayling their losse, jointly crying out together, and then are all suddenly

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whilſt and ſilent, and by and by again renewing their ſad lamentations, tumultuouſly likewiſe running before the Hive, and about the ſides thereof, as if they were not onely diſcontented, but diſtracted: Others are flying (but pittifully complaining, as they flye) about the Garden with a buſie Queſt ſearching for her; and if they do not in a ſhort ſpace meet with her, will all comfortleſs return to the ſtock again, whence they came forth.

But if they finde her, or ſhee be brought unto them, they preſently congratulate her return with continued ſhaking of their wings, and oral rejoycings, witneſſing their preſent contentedneſs, complacency, and ſatisfaction, making even their joyfull content in her, ſomething more joyfull than before, as if ſhe felt pleaſure at her firſt return, were more delicious, and raviſhing, by reaſon of the ſudden change from that diſcontent, and diſtraction in their late loſs to an excellency, if not extaſie of delight and joy.

But if (not finding her) they return home, the next time they come forth, though in numbers a firſt ſwarm, yet not in the manner of their ſwarming; for the next Princeſs comes not forth at the will of the Commons (loſing their Commander, they loſe in this reſpect their liberty) but by petition muſt obtain leave of the Queen mother, as in ſecond ſwarms.

Now when you perceive the Bees diſcontented carriage, preſently ſeek about (beginning at the ſtock, whence they roſe, and going that way, the ſwarm took) and you ſhall undoubtedly finde her, for ſhee is not alone, but encompaſſed with a guard which will never flit from her, though they ſtarve in the place: Take her up therefore, removing the Bees that environed her (you may do it ſecurely with a little ſtick) and carry her to the ſwarm. And you cannot but with wonder behold the ſudden alteration, with what a rejoycing plaudite (their mourning being ceaſed) do they welcome, and entertaine her; and thoſe that were ſeeking for her abroad (although ſome rods diſtant) are inſtantly ſenſible of their felicity (by their fellows rejoycing) and haſtily return to expreſs their content, and bear a part in the general gladneſs.

If a ſwarm light near the place where another was hived a day or two before, when you have hived it, ſet it ten foot diſtant from the place where the other ſtood, for ſome Bees of the

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the first hived swarm, will for two or three dayes together hanker about the place, and if they finde a hive standing there, will boldly enter, supposing it their own company, and so miscarry by the others, who take and deal with them as enemies coming to endamage them.

Swarms will the day after they are hived busily follow their labour, but the removing of them from the place where they were hived, doth not a little discourage them; if therefore the weather bee not fair, they will not stir the first day, and except it bee more than indifferent, they will not stir the second day, and so as the foul weather lasteth, droop, and grow faint, and sometimes totally miscarry.

To prevent this, the day after they are set up, when the Sun shines upon them, or howsoever about noon (except it rain) put a little honey under the hive near the mouth of it, and some at the mouth, and before the entrance (less than a spoonfull will serve) which they will quickly smell, and come down to feed on, and flye forth, and thereby bee acquainted with their new standing, and fall to work upon the first fair weather.

If the weather continue cold and cloudy a week together, without a little supply they will dye, therefore every day refresh them with a little honey. After they are acquainted with their standing, you may put it into the Hive upon a peece of an old comb in the evening. They can indure four or five dayes without meat, but if the foul weather continue longer, they will hanging by one anothers legs, fall down to the bottome of the Hive, and perish; but try them not too far, but quicken them daily with a little honey, and you shall keep them strong and lusty (such close and windy weather falls out often in *May*) you shall gain by this loss, for the weather altering, they will not onely subsist of themselves, but by their painful labours, recompence your cost and care.

If your stocks cast a second swarm after Midsummer, the best way is to return it home again. Hive it as you do other swarms, and about six of the clock knock them out on a table before their stock, and they will go in; and if they come forth again (as perhaps they will) do so the second time, and if there bee occasion, the third also, but look heedfully when you first

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knock them out for the Queen Bee, and take her away, and then shall you bee sure to prevent further and future trouble. And thus shall you keep your stocks full and lusty, which otherwise were in danger of miscarrying, and the swarms (most years) would bee worth nothing.

Set the poorest swarms upon a plank, and when they have done working, dawb them round, allowing air, only through two or three quills, and set them in a dry cold place of your house, or barn, and so being little sensible of the alteration of the air, they will sleep much, and eat little.

CHAP. XV.

What Flowers the Bees gather of.

P Sauflorus Thesaur. Arist l. 11.

IT hath been almost generally received, that Bees gather from all sorts of flowers, good, and bad, sweet, and bitter; some a little, and but a little straiten this vulgar position of all kindes of flowers, both of Herbs, and Trees (saith one) except Docks and Cheesrunnet.

Arist. de hist. Animal. l. 5. c. 19.

Aristotle curtails this a little more, and tells us that they gather of all flowers that have cells or sockets. Mr. *Mouffet* straitens this also, saying, They refuse no flowers, that are fragrant, contained in cells, or sockets; but this also must bee narrowed into shorter bounds, as yet being too large, for of many sorts of such flowers, they meddle not with at all.

First, Bees gather not of flowers which have deep sockets, as Batchelors-buttons, Cuckow-flowers, Cockscomb, Jasmin, Cumphilly, Dead-nettle, Wood-bettony, Wild-blew-veare, Teazil, Red-hony-suckle, rarely, and divers others, and yet these are more abundant with hony, than many that the Bees gather of. And of these the Humble-bees gather plentifully, nature furnishing them with larger fangs, and longer tongues than the Bees.

2 Ordinarily they gather not of many little or small flowers, as Rubia, Pimpernel, Scorpioides, Hares-foot, Oliver, Veronica, &c.

3 Not ordinarily of many physical Herbs, as Erisamon, Agrimony

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Agrimony, Century, St. Johns-wort, Mugwort, Mother-wort, &c.

4 Not of bitter Herbs, as Wormwood, Lavender-cotton, Southernwood, &c. yet sometimes of Rue, the flower whereof is scarcely bitter.

5 Not of very dry flowers, as Docks, Sorrel, Mercury, Atriplex, Wheat, Rye, Oats, &c.

6 Not of those that have a strong stinking smell, as Smalledge, Hemlock, Galopsia, Crown-empereal, Cheesrunnet, &c.

7 Not of those that are soporiferous, and Narcotick as Mandrakes, Red-poppy, Night-shade, Black-briony, &c.

8 Not of those that are very cold and unctuous, as Orpine, Houseleek, Prick-madam &c. for all oylie and unctuous things are hurtful to them.

9 Not of those that have a strong sweet smell, as Feverfew, Maudline, English Laurel, Myrrhe, &c.

10 Of very few flowers that grow in Ponds, or Rivers.

11 Not of those flowers, that (though they have great hollow bodies) shut hard and close at the top or lips, as it were, as Toads-flax, Snap-dragon, Fox-gloves, which the Humble-bees will open (being stronger) and gather of.

12 Not of very double flowers, as double Primrose, Wall-flowers, &c. except where the leaves are very fine, as the Dent-delion; nor of such as have deep sockets, and have no strings from the bottome to the top of the flower; Nor of such whose strings, or horns extend far out of the flower, as Avens, except there bee an excrescency, or cod in the middle of the flowers, as Gillow-flowers have.

Bees sometimes gather of such flowers, as are pernicious and hurtful. The Teil-tree, and the Boxe are very pestilential, so is also the Yew tree. Columel.

If they taste of the flowers of a Corneile-tree, they dye of a scowring, the blowings of Elmes are discommended, and wilde Cowcumbers, as also Woad; which affords a foggy food that over-lades the Bees, and makes them miscarry in the fields; strow Salt under your Hives, and they will bee the stronger and lustier. Tulipas kill Bees for closing a little afternoon, the Bees that are in them are imprisoned, the sides being out-bowing, and Plin. l. 21. c. 12.

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smooth, they cannot get out, and will bee dead, before the next day when they open.

The Lentiek tree from whence the Maſtick is gathered, affords the beſt honey in the world, of which in the Iſland *Sio* (anciently *Chios*) is great plenty.

Sands relat. lib. 1.

Bees gather of theſe flowers following, yet of ſome more plentifully than of others.

In March.

Haſel, Willow, Sallow, Enemony, Bunnikin, Daffadil, Violet, Gooſeberry, Cornelian, Miſſelto, Crocus, Elme, Primroſe, Pilewort, Dendelion, Spoonwort, Bears-foot, Black-thorn, ſingle Wall-flowers, &c.

In April.

Ale-hoof, Ribes, white, red, black Oak, Peach, March-marigold, Cole, Turnep, Sycomore, or great Maple, Ribwort, Stockgillowflower, Cow-weed, Furſe, Strawberry, Broom, Beans, wilde white Enemony, Bears-ear, Ozier, Plumtree, Cherry, Pear, Apple, Crab, Barbery, Beech, Tear, Maple, Birch, Apricock.

In May.

Water-creſſes, Hull, Angelica, a tall rank graſs, Parſnep, Onion, Leek, Garlick-ſeeds, Dogs-tongue, white Valerian, Tamariſk, Thrift, Sage, Stocksbill, Mouſ-ear, Raſpis, Charlock, Marigold, ſmall yellow Honyſuckle, Poppy, Woodbind, Medlar, blew Valerian, Burnet, wilde Tanſie, Archangel, both with the white and yellow flowers, called by the *Tygurines*, Been-ſauge, or Bee-ſuck, Hawthorn, Elder, white Honyſuckle, King-cup, Peaſe, double Gies.

In June.

Tre-trifoly with yellow knops, and another kinde of Trifoly with long red bloſſomes, and a Trifoly with pale, yellow bloſſomes like a Lotus, but ranker, Dewbery, Blewbottle, Mothmulleine, Luteola, or Diers weed, white Briony, Savory, Origanum, Hyſop, Pondweed with a flowre like Patience, Lang dez beuf, common Thiſtle, Bugloſs, ſometimes, but ſeldome, Burrage, Parſly, Lotus, Liſimachia, Roſes, red, Damask, Velvet, Henbane, Muſtard-ſeed Sharewort, Canker-roſe, Daneſwort, Bindweed, Mallows, Melilot, Calamint, Cowcumber, Thyme, which onely yeeldeth Nectar. So Mr.

Bus-

Butler; who therefore findes fault with *Virgil*, for saying, *Crura thymo plena*, but let any observe, and hee shall finde they gather as often Bee-bread as honey; and again hee saith, The Bees gather not of the Rose, the Primrose, the Clove-July-flower, the Pease, of all which they gather plentifully, but not of the Pease untill the blossome begins to wither, and the cod to put forth, and then they gather Sandaracha of it plentifully, especially in the morning. Mr. But. sem. mon. c. 6.

In July.

Tobacco, Love, Carduus-benedictus, Jacea, Lampsana, Penny-royal, Small Dentdelion, Scarlet Beans, Mayweed, Gourds, Clotbur, Live-long, Horse-mints, Skirrets, Yarrow, Germander, Nip, Sowthistle, single, and double July-flowers, Succory, Dill, Clematis Altera, Fenil, Filius Ante patrem, Holy-hock, French-marigold, Coriander, Lavender, Melon, Blackbery, Buck, Jacobea, Stechados.

In August.

Red Eye-bright, Knap-weed, Heath, Virga Aurea, Ivy.

In September.

You are to take notice that many of these flowers blow twice a year, as Rosemary, Archangel, Tamarisk, Burrage, Charlock also, although not the same roots. And some continue longer than the month whereto they are ascribed, and some begin to blow a little before, but whensoever they blow, the Bees gather of them, but less in Autumne than in the Spring.

Many flowers afford matter of gathering in the morning before the dew is quite exhaled, which in the heat of the day yeeld little, as the Pease, and a tall rank grass, having a stalk a foot, and a half long, with a large bulhie eat.

Bees have this property, that whatsoever Flower they first begin with, when they goe to work, they meddle with no other that journey, but lade themselves with such meat alone as that kind yeeldeth; this is a common, but no catholique custome, for I have often observed the contrary. Arist. de hist. Anim. l. 9 c. 40

It is true, if there be flowers enough near at hand, to make up their burden of that sort they begin withall, they will meddle with no other, but if they have begun to gather of a flower that likes them, and cannot finde enough to furnish them, then they will make up their load of some other.

CHAP.

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CHAP. XVI.

Of the ordering of Bees.

IN *February* lift up your Hives on the one side nimbly, and with a wing wipe away all the sharings of combs, dross, dung, or whatsoever else lyes upon the stoole, which although the Bees in time would performe, yet hereby shal you save them a great deal of labour.

If your old Stocks have any crumbling, or crispie combs, take them out in the Spring, for they cannot work to them; lay the Hives on one side, having ready a fire of dried Cow-dung in a Chafingdish without a flame, the smoke wil drive the Bees inward, and you may securely performe it.

Some tell us of putrefaction in the combs, in regard of dead brood chilled, which combs they would have taken out; but I never met with more than the Bees could rid themselves of, except when the Bees are almost, if not altogether starved.

Weckerus de secret. Lib. 8. That they so love quiet, that they scarce endure the company of men (is false) and therefore must have walls built about them with holes, to see what offends them, is ridiculous, yet commended by *Florentinus*.

Bees are much offended with long hair on head, or face, let such therefore as must be often among them wear short hair, or be wel covered, on peril of stinging.

If a Bee have stung you in hot weather, your wisest and safest way is to depart for a while, for there issues with the sting a strong poysonful savour, which you your self may smel, but howsoever, the Bees wil readily, and knowing thereby that some of their company are wronged, wil with eagerness seek to vindicate the injury on whomsoever they finde present in the place, and come about you thick and threefold; there is no way to appease them but one, get away as fast as you can, and when the uproar is over, you may securely come again.

The best time to doe any thing about your Bees, is, in the morning before they stirre, or when they are new gone abroad, or in the evening, when they are returned from their work.

Virgil. Make the mouth narrow, least the Summers heat dissolve the

Hony,

Dissolve the bony, or cold Winter freeze,
For both extreams alike annoy the Bees.

Be very careful about the doore, or entrance into your Hives, for negligence herein occasions the loss of more Bees than any other neglect, from the Dor-mouse, and Tit-mouse in Winter, and the Wasp, and robbing Bees in Autumn.

Let the doors be somewhat long, but very low, not much above the height of a Bee, and let them be more or less open, according to the seasons; but rather offend in leaving too narrow an entrance than too large; a thin board in Winter cut in notches like a grate, wel fastned to the Hive, with Cow-dung and Ashes tempered together; two notches open in Winter, is enough for a good Hive, one for a poorer; for thereby they are kept more warme in Winter, and more secure from enemies.

When they have wrought a week in the Spring, the better Hives may have three or four notches open, and by degrees more, until they be full, and then you may take away the grates altogether until Autumne; but be sure to set them early to the old Stocks that have over-swarmed, as also to the poore swarms, and in a dry year, sooner than in a moyst, for the Waspes wil be more numerous and early, and the robbing Bees finding little abroad to busie themselves about, will be seeking to plunder poor and weak Stocks betimes.

When you see the Waspes begin to be busie, and forsake eating of dead Bees, before the stooles, venter into the Hives, set up your doors to the poorer Stocks, and narrow the passage of the better with a little Cow-dung (tempered as before) that it may not be above an inch long.

If you will bee at cost, it will be very beneficial to have a hurdle made of Oziers set before your Hives, even with your stools, or else boards shelving outwards at the bottome, for the Bees to rest on when they come home weary and laden.

Mr. *Levit* misliks the keeping of Hives four or five years at the most, but his reasons are weak, because (saith hee) the combs will be black and unsavoury, and the old Bees are not so good for increase and breed, as the young, nor so strong and lusty for labour; but these reasons are without reason, for blackness of the combs is no fault, as wee shewed before, and

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of the age of Bees, wee shall treat by and by, onely in a word, note that they are an annual creature, and live not beyond a year with the vantage; on the same ground, therefore all the old stocks must be taken every year.

Many things are necessary for the preservation of Bees, first, A competency of food which they will labour for, and compass with their own industry, except the unseasonableness of the weather, the smalness of their numbers, the treachery of enemies, the power of robbers, or the covetousness, or simplicity of their owners by driving them too late, or after that by reiterated swarming, they have diminished their numbers, for the recruiting whereof, they were well enough furnished with brood (although then unfledge Nymphs, yet the hopes of continuance) of which being untimely bereaved by driving, as desperate, they either forsake their Hives; or if they continue and work, yet can they not sufficiently breed, and provide themselves before Winter, and therefore must starve.

It hath been inquired by some, what quantity of hony will serve a Hive of Bees all Winter: To which question no certain answer can be returned, because of the numbers which in some Hives are more, and therefore must have more meat; and also because the Spring in some years, is more forward than in another, so that quantity that will serve in one year, will not serve in another. But I would not willingly let any stock continue, that had not five pintes at the least of hony.

Sometimes it will bee convenient to hoist up such swarms that you fear will cast, especially if Midsummer bee past, for although they may live, yet ordinarily they will bee weak and poor, and the stock whence they came so impoverished, that it continues, it will scarce swarm the year following.

Raise them up by putting four Brickbats at an equal distance under the skirts of the Hive, let them go no further inwards than the verges, then dawb them up well, leaving a fitting passage for them to go out of the Hive.

I like Mr. *Southerns* judgement to set them down again afterwards, the best time is in *January*. This Mr. *Lewis* laughs at as an impossibility, supposing that they having wrought down to the board, the combs would bee crushed together, and many Bees killed; but laying the Hive on the side,

and

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and making a smoak (as before) in a cold morning, to drive the Bees up, with a long sharp knife cut the combes a little within the Hive (as I have often done) and there will be neither danger, nor damage.

Mr. *Butler* adviseth to set them down in the end of *August*, when by the death of the old Bees, and also of the Drones, there is more room made, lest their swarming bee hindred the next year, unless they bee swarms that have wrought down to the stool, which indeed most have, and then this advice is to little purpose. Mr Butler Fem. Mon. c. 3.

The course in our Country which most take to get some profit by their Bees, is driving, out of a foolish pity they will not burn them, but care not much to starve them, and that without any great profit to themselves, for they usually do it after they have cast a second swarm about Midsummer, or a week after. The Bees then (besides those in the brood, which would have been a sufficient supply to them) being then very few, and many of them old Bees, which in a month, or a little more, will all dye, and then they will bee by much fewer; as soon as they are driven therefore, despairing by their own industry to subsist, they will leave the Hive and flye into another, so skipping for the most part, out of the Frying-pan into the fire. If they work, as some will endeavour their own preservation, yet not one of three in ordinary years out-live the Winter, and they being weak, are often made a prey to robbers in the Spring, or having spent their little store, then flye away; but if they out-wrastle all these difficulties, yet they will scarce swarm that year.

Moreover little hony at that time of the year is ordinarily to bee had; a quart, perhaps a pottle, and this is a liberal portion. Whereas if they will drive them, let them do it early before their hony is consumed by successive broods, and let them observe the condition of the Spring, for thereby they may have some likelihoods whether they will do well.

I have driven ten Hives in the beginning of *May* (not swarming the year before) all which after swarmed the same Summer, and the prime swarms did very well: Or if you will drive, take this course, when your stock hath cast a second swarm, the night following drive the old stock into the swarm, and they may do well, except it be late in the year.

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Old ſtocks before they have ſwarmed, and early ſwarmes driven, ſeldome miſcarry; I have known them driven twice in three weeks, and full of hony the ſecond time. Nay a fooliſh neighbour of mine drove a ſwarm the third time, and had above a gallon of hony at either of the two firſt drivings, and above three quarts the third time, but it was ſo late that the Bees dyed that Winter.

If you have a ſtock that lay out the year before, and ſwarmed not, and doth ſo the year following, and Midſummer be paſt, drive it, and ten to one (if the year bee indifferent it will do well.)

Now to preſerve your ſtocks, and yet to make ſome advantage of your Bees, take this courſe (except you know a better, but thus I do) About *Bartholomew-tide*, I ſurvey my ſwarms, and all thoſe that I finde not by the weight competently ſupplied, namely with five pintes of hony at the leaſt, I take, and I examine my old ſtocks, eſpecially ſuch as have ſwarmed twice, or oftner, and where I finde few Bees, which you ſhall know, if giving the Hive a little knock with your finger on the out-ſide of the Hive, if the murmur bee ſudden and ſhort, then it is a ſigne there bee but few Bees, but if it bee ſmart and long, deſcending from the top downwards, then it is a ſigne of plenty.

They that have but few Bees, though they bee never ſo well ſtored with hony, yet will not continue over the next Spring, but will bee a prey to robbers; therefore it is better to take them then to loſe them, and their honey alſo; but yet if you deſire to ſave any that are well ſupplied, then drive a ſwarm that you intend to take into them, and ſo ſhall you have a good ſtock; and thus with Gods bleſſing ſhall you increaſe your Bees, and have a ſufficiency of hony and wax. If you have not, you may take as many of the beſt as you ſhall think convenient.

Some preſcribe to take thoſe that are too full of hony, as (thereby) diſabled to breed, and proſper the year following, but this is but a groundleſs ſuppoſition for ought ever I could finde, having had as good as any other, the combes being generally filled with hony to the board, which I have let ſtand on purpoſe to try whether they would breed, and never found, but ſuch were as full of Bees the year following, as any other; for

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after working time there is a long time of eating, and if they be numerous with Bees, they wil make roome enough by breeding time.

The manner in a word to take Hives in the latter part of the year is by burning, which briefly you may thus doe; take an old linnen cloath and cut it into long narrow peeces, about two handfuls long, and halfe an inch broad, and then having melted beaten Brimstone, dip them therein, and having digged a hole near the Hive that you intend to take, let it be somewhat more than a foot over, and half as deep; set in the bottome of it two or three crotched sticks, into which put three or four of your raggs smeared with Brimstone, and having kindled them set the Hive over, stopping the verges somewhat close, and your Bees with the smoak wil in a short space fall down stifled and dead.

For the manner of driving, it is needless that I should speak much, being wel known almost to every one.

Have a prepared Hive as near as you can, of the breadth, in the skirt, of that Hive you will drive setting it on the ground, put sheet over it, and wel fasten it with a strong pack-threadround about the Hive within an inch of the skirts, then having a Trivett, Payl, or Firkin ready, set the empty Hive therein with the mouth upwards, and then lift the Hive you wil drive, nimbly from the stall, and set it upon them empty, and gather up quickly the sheet that hangs down to the crown, and fasten it wel likewise with a little line, about an inch from the skirt, and turn them thus tied together, that the empty Hive may stand upwards, and knock gently with the palmes of your hands on the sides, and on the crown, sometimes in one place, and then in another, and often pause, and make a little stop, that the Bees may ascend, and reiterate your clapping againe; in half an hour they wil be all, or the most of them gone up, and then carry it to the place where the other stood; if you doe it in the evening, let it stand unmeddled with all night; if in the morning, let it be before Sun; and if there be any Bees behind, when you take out the combs, sweep them off with a wing, and they wil finde their fellows.

Many in the Bees necessity commend and applaud feeding, when by driving unseasonably, or not seasonably uniting (as the

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Proverb is) *They have broken their heads, they would give them a plaister*, but for the most part too narrow and scanty for the sore.

For feeding of weak Bees, many things by many are prescribed, I shal be brief in the particulars, because I altogether dislike feeding, except in the beginning of the year, through the backwardness of the Spring, some Hives (otherwise sufficiently furnished) stand in need, or some early swarmes, the weather proving tempestuous, cold, or close, sometimes for above a week together: it wil be very convenient then to relieve them, until the weather alter, and they begin to work, when they wil need no longer your supply, and without a little supply would bee so poor and feeble, that they would untimely miscarry, and dye.

The ancients commend feeding of them with Raisins, bruised Figgs; *Pliny* bids set Hens flesh before them, although he acknowledgeth that they eate no kinde of flesh, and therefore in that respect preferres them before the Hornet, and the Waspe.

Mr. Hartlibs Legacy.

The Gentleman that wrote the first large Letter in Master *Hartlibs* Legacy, a wel-wisher to Bees, although little skilled, (as it appears by his Projects) in the nature or ordering of them, taxeth a general deficiency in this Kingdome in this respect, as if we were more negligent, or ignorant than some of other Countries; for the glory of our Nation let me plead (which he ignorantly traduceth)

The knowledge of Bees was never truly communicated to the World by any but by *English* men; Mr. *Southerne* brake the ice, then followed Master *Levit*, who wrote more than fifty years since: though he was published long after Mr, *Butler*: Mr. *Levit*, I say, not the Father of the publisher, but the Grandfather (perhaps his Grand-child knew not so much) and I question not but Mr *Butler* was acquainted with his Book, for it was in divers mens hands though not printed.

After him Mr. *Butler* wrote singularly wel (although in some things defective, and no question but after Ages may adde more, but I wil not be too bitter, not doubting of the Gentlemans good meaning, but advise him, and all others in this, or any other subject, not to urge Eutopian conceits, but such things as

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as out of experience they have some probable grounds for, *Ne sutor ultra crepidam*, all Countries produce not an equal store of every commodity; that other Countries abound more with Hony, is not because they abound in skil, *Scandia* is more plentiful, because after the great snowes that lye all Winter on the ground, and keep it warme, which once dissolved, the earth is presently embroidered with a garment of Flowers in greater plenty, variety, and continuance than most Countries afford; and the long dayes are another advantage, especially the weather not being so variable as with us, and a principal cause of their increase is the extreame cold in Winter, which holds them in a perpetual sleep, so that they eate little after they leave working, and the earth with the Winters Snow and Raine is thorowly moystned, that drought seldome proves injurious to them, as it is often with us.

But for his conceits of feeding Bees with sweet compositions of divers things besides Hony, because cheaper; we are to know, that although they wil eate of all kinds of sweet things, yet are they not so proper and natural as Hony, neither wil they when they stand in need of feeding extract Hony out of them, as hee supposeth, and repleniſh their Combs, no nor carry at such times Hony which they feed on into their Combs; and when they can doe this, namely, when they are lusty, and the weather warme, they rather gather it abroad (and save your cost and charges) but suppose those compositions were beneficial, yet not to the old Stocks that are likely to miscarry, for they for the most part have already more meat than mouthes, but yet it might preserve the swarmes.

I have shewed a cheaper and safer way, by uniting, and for casual wants, in regard of the continuance of cold and bad weather, Hony is more natural.

And whereas Mr. *Southerne* objects against old Hony, that it wil make them scoure, this is but a fancy, I yearly upon occasions experiment it, but never found that inconvenience.

He objects further, If they be fed, they wil fall to robbing of others, but herein also he was mistaken; Bees that stand in need of feeding are seldome so lusty, never so ventrous to plunder others, but rather in continual danger to be robbed by others of that little they have, which feeding, not duly performed, readily exposeth them unto.

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The Gentleman in Mr. *Hartlibs* Legacy, desireth to save the poor swarmes by feeding, and with the least charges that might be, whereas not one of six (never so carefully fed) that are desperately poor, can be preserved, and if they doe live and escape the robbers, and not forsake their Hives, which most of them wil doe, finding their numbers small, yet will they not swarme if they live out the Summer, so that the charges besides the trouble will double the profit.

When you have occasion to feed, if you have not reserved Combs on purpose when you took your Bees, spread Hony upon a dry combe, and put it under the Hive in the evening, but remember to take it away in the morning, if any be left, or shut them up until they have eaten all, least the robbing Bees finde it, and not contented therewith, carry away also that little they have in the combes, I would have feeding begun (where it is necessary) before an absolute want, least they bee so poor and weak that they cannot come down; if any happen so to be, then turne up the mouth of the Hive in the heat of the Sun, or near a Fire, and drop a little liquid hony among them.

I have recovered swarmes shut in by long cold weather, where not a Bee hath been able to stirre, and continuing it after with a little hony put under the Hive until the change of the weather, they have done very wel that year.

Bees wil sometimes suck the sweetnes of rotten Pears, sometimes full ripe Grapes, but yet a very few among a great many with us.

Fachellus de reb. Siculis, l. 1. prior. decad.

In *Sicilia* there be Grapes of which they make Muskatell, which are therefore called the Bee-grape, because the Bees greedily feed upon them, as also Flies.

Mr. *Butler* counsels, that you cut asunder such Stocks as you intend to preserve (almost even with the Bees) if they have not wrought within a handful of the stoole, and then to set them down, making them a new door, that thus they may be warmer in the winter.

This is a course both wastful and useles, for I never had any stock, if it were supplied with meat, that miscarried, although the Bees had not wrought half way down. And to prevent it, in ordinary years fit your Hives according to the greatnes or smalnes of your swarms; This way, if otherwise profitable, cannot

be

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be performed without destruction of your Hives, and the loss and trouble of your Bees, and the Stock wil be so small, that except you adde another, and raise it, the swarme wil be worth nothing.

To prevent the cold, daub up the skirts round, and let the entrance be very small.

A watering place near your Bee-garden is very necessary, they cannot subsist without it.

——But near pure Chrystal Springs,
Green mossie Fountaines still your Bee-hives place,
And streams that glide along the verdant grasse. Virgil.

Without it some say, they can neither make their Combes, nor yet their Hony; but the use is not so generall, but when they feed on Bee-bread (which is hot and dry) they cannot bee without it, and they love not to goe farre for it. Columel de re rust. 9 l. c. 5.

Into your running or standing water many prescribe to cast in stones, somewhat elevated above the water:

Into the Poole, whether it stand or flow,
Great stones a crosse, and Willow branches throw,
As Bridges for the Bees to stand upon,
And spread their wings against the Summers Sun. Virgil.

But peeces of Wood, or Boards, entred into the water, and set shelving, or leaning towards the North are much better, the stones being too cold in the spring; but if you can bare the banks of the North-side of your Pond of all bushes, and grasse shelving towards the water, where they may drink under the Wind, and in the heat of the Sun, and suck it out of the earth above the water, which they rather desire, than to suck the pure water it self.

But if you have neither Pond, nor River within twenty rodds of your Bee-garden, set water in wooden troughs in your Garden, and have light thin moveable boards, or corks within your troughs, that may rise and fall with the water, let them have small clefts, or many little holes bored through them, that the Bees may stand on the boards and drink; keep Hens and Chickens,

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ens, especially Ducklings from these troughs, for they will destroy your Bees.

Mr. *Butler* enumerating the several actions of Bees in warme dayes in Winter, among others saith, they drink, but he was deceived, for although sometimes in *January* they gather a little Bee-bread, yet until they plentifully feed of it, they drink not, for while they feed on Nectar which is hot and moyster than Bee-bread, they need it not, but the other being more hot and dry, makes them exceeding thirsty.

Bees will be very much about sinkes, and where greasie water is thrown, nay they rather delight to drink out of Sawpits and holes where the water is thick and troubled, than out of Bonds, though nearer them; and when they water out of Ponds, they delight (as I said) to extract the water from the moystned earth near the Ponds, or Rivers brinkes, than to suck or drink of the purer water it self, which yet some will.

Mr. *Remnant* supposeth, that they suck out of sinkes, or old ditches, and places that incline to Salt-peter, for want of salt water, wherewith saith he they season their Hony, which I believe not, but rather that they may be more vigorous and lusty, and therefore salt is prescribed to be laid under weak Stocks; hee saith, it is in the defect of Salt water, but where they are near the Salt they use it.

And he further saith, they season their Hony with salt water, and in the want of it, with brackish water thus extracted, therefore he commends the setting of salt water or brine near them; but they neither use salt water about their Hony, nor yet fresh, (as *Columella*) but for the reason before mentioned.

In Summer they will drink securely upon the Duck-sheard, and other thick weeden in the middle of Ponds; the best time to remove Bees, if you are to carry them farre is in the end of *January*, although if you be necessitated, you may do it well enough presently after *Michaelmas*.

A little before you take them from their standing, lift up a little the skirts of the Hive, and put three or four Tile-sheards under the Verges, that (the Hives standing somewhat above the board) all the Bees may ascend, otherwise some will be left on the bottome of the stoole, which will be lost; then spread a sheet upon the ground before it, and nimbly take it off, and set it upon

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upon the middle of the sheet, and gathering it up round, tye it close above the crown with a noose, tye it also about the middle with a Pack-thred, then put a Cool staffe through the noose (bee sure it bee well tyed) it must hang perpendicular, not swaying one way, or other. Let it bee carried between two to the place whither you intend it, when you come there, set it down, but open it not presently, for the Bees will bee somewhat disturbed with the motion, and ready to flye forth; it is best to set it up in the heat of the day, that if any suddenly flye forth, they may not bee chilled with the cold, but after a little flying about, they may return to it again; but if the weather bee close and still, then set it up in the evening, and stop it up close (leaving breathing holes) untill a faire day, and then open the door.

CHAP. XVII.

Of Bees breathing.

AFeer a long condescension to the capacities of the Vulgar, to whom almost peculiarly this large practical Discourse appertains: I will now endeavour to set an edge upon, if not, to satisfie the appetites of the more judicious, though not with a banquet of Rarities, yet with a dish or two of Sweet-meats (according to promise) as soon as I can provide them.

There is a necessity of refrigeration from without, by aire or water. Now the grand inquiry is, How Insects (in particular Bees) are refrigerated. The Philosophers before *Aristotle*, held that all creatures breathed, as. *Democritus*, *Diogenes*, *Anaxagoras*. Arist. de partibus Animal. l. 3. c. 6. Arist. de Spirat.

Pliny professeth that bee accords not with *Aristotle* in this particular, that Fishes breathed not, because they did hear and smell. Plin Nat. hist. l. 9. c 7.

I will speak one word to this (although out of my sphere) and but a word, lest I conjure up learned *Scaligers* ghost to oppose mee, That Fishes breath is evident to sense; I have seen them often come up to the top of the water, and a little elevating their heads above, draw it in with the water, and with

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many bubbles return it again, some at the Gills, but the greater part at the mouth.

And that they cannot live without aire, thus, In great Frosts they cannot long continue though they have water, except the Ice bee broken, and then they will presently come to the hole for aire, so that sometimes you may take them out with your hands. And if it be some dayes delayed, they will turn up their bellies in the holes as quite spent, yet by the benefit of the aire, many of them recover, but if it bee altogether neglected, in a great Frost most Pond-fish will dye.

Rondelo de pisc but l. 4. *Rondeletius* holds, That not onely Fishes, but Insects also breath (although without lungs) in particular Bees, because of the sound, and murmure that they make, and because they smell.

Cardan. de subtil. l. 12. *Cardan* affirms, That all living creatures breath either openly or secretly, manifestly such as have lungs, more hiddenly which have gills; and that is most obscure by palpitation, and therefore whereas *Aristotle* denies such creatures that have no lungs to breathe, hee understands thereby a perfect breathing, and therefore saith, The sound of Bees is caused by the aire, which they receive and draw in; why not the same instrument that draws it in return it? But this opinion, although *Aristotle's Scaliger* labours to undermine, but to little purpose. Hee supposeth it to bee caused by the shaking of their wings. This both *Aristotle*, and *Hesychius* before him propounded, but did not conclude of; Mr. *Muffet* saith, It is a secret not to bee determined of. The L. *Verulam* supposeth the humming sound of Bees (which is an unequal buzzing) to bee from the motion of their wings, because it is not heard, but when they stir. I deny not but the sound is more shrill and audible thereby, but not onely caused therewith.

L. Verul. silva silvar. cent. 2. 175.

First, because in a Hive full of Bees, where they lye crowded up thick together in the Winter between the combs, without room to dilate their wings, not at all to shake them, you shall have a sudden smart sound in an instant from the place touched, descending to the bottome from all the Bees, as it were complaining.

Secondly, by the incouragement of the Queen Bee, when two swarms are united, and so mingled together, that either of them

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them being encompassed with their whole troop, and having no room to stir, and shake their wings (being each of them in the center of their regiment) but as they are in the conflict moved with the whole body; yet may they bee heard audibly sometimes a rod from the Hive a great while together, without intermission, each encouraging her army to stand to her, and for her.

Thirdly, If their sound were caused by the agitation of their wings only, it could not bee various and changed, but onely smaller, or greater, but both *Aristotle* and *Scaliger* acknowledge, that they change their voyce; and if they did not, yet is it so evident to sense, that but comieg among them, by their different voyces, it may bee known whether they mourn or rejoyce, work or fight. Arist de hist. l. 9. c 40.

Fourthly, If their sound were caused by the agitation of their wings, then according to the largeness of their wings should bee the greatness of their sound, but this is not so; the Queen Bees wings are no bigger than a common Bees, but her sound is more than ten times lowder and greater.

I might adde that Crickets sing, and their voyces are heard very far, and yet have no wings to shake; nay they move not their bodies when they sing, as I have often observed, and as soon as they stir, they give over singing.

In a word, as to a Musitian that playes on a Flute, or such like Wind-instrument, there is required skilfulness in the outward touch of his instrument, and also wind to bee inspired, without which hee cannot possibly strike the ear, or please the sense with any melodious noise, so do I conceive in some respects the humming noise of the Bees, is caused both by the outward motion of their wings, and also by an inward motion, that I say, not inspiration.

Aristotle was very wavering what to determine concerning their sound, sometimes hee saith, they make a noise; sometimes, hee grants they have a voice, and hee hath no sooner granted it, but would fain bite it in again if hee could, as overthrowing this position, that they breathe not; Hear what hee saith, they change their voyce, when they swarm they have a proper and peculiar voyce, but whether they have a voyce or not, is not yet throughly understood in regard of the difficulty. Arist. de hist. l. 9. c. 40.

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Thus is this grand Philosopher unresolved, it is a difficulty, hee cannot tell what to determine; but hee hath taken up another opinion, and although hee bee somewhat convinced of the vanity of it, yet hee is loath to retract, hee will rather set his wit upon the Tenters, and feign some new distinction, sometimes they make a sound, sometimes they have a voyce.

Arist de Spirat. Small and blood-less creatures are externally cooled by the ambient aire, or water, neither is it necessary that the air should penetrate them, because of the weakness of their natural heat; but the coldest creatures need refrigeration, for they have a heart, as the Snail, which is visible to all men upon dissection, and much more hot creatures, as Bees are, which have also a heart, although it bee not easily discerned by prejudicate eyes.

Arist. de Somno & Vigil. Winged creatures when they move themselves by the attrition of the aire sliding into their belly, make a noise.

Arist. de hist. l. 4. c. 7. And again, Insects have no voyce, but make a sound onely by the admission of the aire, not emission, and Bees, and all other Insects lift themselves up with their wings, and presently contract themselves when there is made a sound by the attrition of the aire taken in, but not constant to himself, hee saith in another

Arist. de Spirat. place, There is an innate implanted aire in the transverse inclosure, which being lifted up, and contracted, causeth thereby a smiting on the little membrane, and hence saith hee is their sound.

Scalig. com. in Arist. de hist. l. 4 c. 7. *Scaliger* saith, It is from a membrane including the aire, and the motion of the external members.

Magirus Physiol. *Magirus* saith, Their noise is not made by a return of the aire, but by an agitation of an inward not outward aire.

L. Verul. Silva Sil. cent. 2. 133 Another supposeth sounds, and therefore voyces may bee made without aire. It is certain, saith hee, howsoever it cross the received opinion, that sounds bee created without aire, though aire bee the most favourable deferent of sounds. Take a vessel of water, and knap a pair of tongs some depth within the water, and you shall hear the sound of the tongs well enough, and not much diminished, and yet there is no aire at all present. What if I should say there is aire in the water, because there is in it a sound made?

Arist. de Spirat. Hot creatures as Bees, desire a greater refrigeration: Bees like

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like to those creatures that breathe, do make a sound (*spiritu*) with the aire or spirit, for when the native, which is (as before) implanted in the transverse enclosure, is lifted up and contracted, then is caused an attrition of the membrane; For they do not otherwise move this part, then other Animals draw aire with their lungs from without, and Fishes by the agitation of their Gills.

Scaliger is for transpiration; and so *Basil*, hee saith, That Insects breathe not, being without lungs, but were nourished by aire in the external parts, and his reason is, if they bee dipt or smeared with oyl, they presently dye, the passages or pores being stopt, but yet saith hee, If they bee presently washed with water (others say Vinegar) the passages being opened, they will live; and with him accord divers others. Basil Hexam. Homil. 8. Alexand. Aphrodis. l. 1. Problem. 62.

To this I answer, That it is granted that oyl kills Bees, and almost all other Insects being naturally mortal to them, and wash them after with what you will they will, neither revive, nor recover, but almost as suddenly dye (though but a part of their body bee smeared with oyl) as if they were cast on hot embers. And that it is not, because of the stopping of the passages of the aire, appears thus: Let Bees bee drowned in honey, which is more viscous and clammy than oyl, yet if they bee timely taken out, they will dry themselves, or bee suckt dry by their fellows, and recover.

Now at last you cannot but take notice how various they are in their opinions, that deny breathing to Bees, or so to make a noise, they cannot but acknowledge a necessity of refrigeration.

Aristotle sometimes by the admission, not emission of aire, sometimes by a native implanted aire.

Scaliger from a membrane including the aire, and the motion of the external members.

Magirus by an agitation of an inward aire onely, but whether native, or adventitious, hee expresseth not.

L. *Verulam* sometimes, that a sound may bee made without aire, sometimes by the motion of their wings.

Basil that they are cooled by transpiration, and therefore by an aire so admitted, must make their noise. Thus wilfully deviating from, and denying a truth, they are quickly be-wildred in a thicket of errors.

Now

Aldrovand. prolegom. in lib. de insectis.

Now let us hear their arguments why they suppose them not to breath, *Aldrovandus* saith, Insects, neither breathe, nor need breathing, because a breathing faculty is bestowed on creatures which have lungs, but Insects being blood-less are cold, and therefore want not refrigeration, but are sufficiently cooled by a native aire, or externally by transpiration; I answer many of them (if any) are not blood-less, for they have a heart which the Philosopher accounts the original of blood. And if they have a heart (*Aldrovand.* acknowledgeth) they have lungs also, and stand in need of great refrigeration. And that Bees are hot creatures, *Aristotle* affirms.

Arist. de Spir.

Secondly, If they breathed, as they drew in breath, they must also return it, which could not bee done but by some inward instrument; but all Insects are without bowels (according to *Aristotle*) but this is manifestly untrue; dissect a large Grashopper, the bowels are visible to him that hath but half an eye; and so also in Humble-bees, and in many other Insects.

In some that are very small, they are not distinctly visible; but it follows not therefore that they are without them, no more than because they want the visible organs of hearing and smelling, that therefore they neither hear, nor smell; both which senses almost all natures secretaries acknowledge to bee in them. And yet who is able to point out the instruments. *Aldrovand.* hath some other reason, but all built on the former foundation, which miscarrying, they must needs go to the ground.

Scal. de subtil. exercitat. 273.

Scaliger his main argument that they breathe not, is, because they need not a refrigeration of their heat having no heart; but this being manifest to sense, as learned Dr. *Harvey* avers, the argument falls to the ground.

Others deny that Insects breathe, and their reason is, because there is no breathing knot, or turning in the inward intrall, that is to say a membrane like to the lungs, whereby the aire is drawn in, and therefore some hold that they live as plants; but there is a great difference whether any thing breathes or lives. Others convinced of the vanity of this conceit, hold that they have something analogous, namely by transpiration.

Arist. de Spir.

Aristotle saith Bees breathe not, because they continue long in the water. But not long under the water; so long as by beating with their wings, they keep their heads out, they pre-

serve

serve themselves; but their wings being once thorough wet, they quickly drown.

And that they receive water into their bodies appears, because when they dye suffocated in the water, they are greater than when they are alive, whereas if they dye otherwise, they shrink up, and are less.

Aristotle, and also *Scaliger*, adde another reason, they will, covered with ashes revive, perhaps if they have not been long drowned, with heat they will recover, as they will if they bee chilled near twenty hours, but ashes are so far from reviving of them, that if they bee alive and lusty, they would rather kill them; for dust (much more ashes) will, if they go a little upon it, so fur their dew-clawed feet, that it will indispose them to flye. Idem de Spirac.

Breathing, saith *Scaliger* is seen by motion, or perceived by touch, by the pulse, or understood by the voyce, and all these wayes more or less, may it appear that Bees breathe. Scalig. de subtil. exercitat. 273.

But it may bee objected, that they have no nostrils to receive breath by.

I answer, They breathe by their mouth, *Aristotle* saith, the mouth is for many uses, for divers creatures do breathe with it. For breathing is not a proper work of the nostrils, but creatures breathe, partly by the nostrils, partly by the mouth. Arist. de partibus Animal. l. 3 c. 1. Arist de Spir.

But it is further objected, wee see no lungs: I answer, in fowls the lungs are small, and but like a membrane; surely then in such small flying creatures as Bees, they are not visible.

But to conclude they have no lungs, because wee see none, were but a weak arguing. In some creatures denied to breathe, we see them, and perhaps with a good multiplying glass, might see in these; by the same reason wee might deny they hear or smell, because wee see no organs (as before) whereby they perform it, and yet nothing is more certain. Arist. de partibus Animal. l. 4. c 6.

That Bees breathe, Mr. *Butler* affirms, but it was a question hee disputed not, but relating how after they have been dead a whole day (being chilled with cold) although, saith hee, they be quite dead, without sense, motion, and breath, you may, if you bee disposed, revive them with the warmth of your hand (but look to your selves, for many when they begin to revive, will ingratefully sting.) And this their reviving cannot but al- Butler Fem. Mon. c. 7.

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most seem a miracle unto you, for presently their spirits returning, you shall see them begin to pant and breathe, and anon they will flye away as lusty as the best.

But to come to arguments, That Bees breathe is evident by their panting and palpitation; I mean not when they are in the condition of prisoners, and violently held or detained, for with *Scaliger* I acknowledge, that Bees or flyes captivated, palpitation is not breathing, but a striving to escape.

Bees when they return from their work are often so weary (as men out of breath) that they are necessitated to rest themselves near the Hive, untill they have recollected their spirits, and gotten, by a little rest, new strength; at first panting more quick and short, but by and by fetching as it were a longer breath, untill at last they pant little, if at all.

Secondly, It appears by their sweating at the Hive-door, a moist vapour is visible at the door of a good Hive in the morning, sometimes in drops of water. As Bears in *Russia*, while they sleep in Winter, yet are found by the Hunters, by the dissolved snow turned into isycles on the boughs of the trees under which they ly, caused by their continued breathing.

Thirdly, because if a full Hive bee close shut up that no aire enters, they will quickly bee suffocated and dye; whereas indeed if there be but few Bees, they will continue the longer enclosed, a circumambient aire in the mean time refrigerating, and cooling them.

Arist. de Spirat. Fourthly, if you stop their throats, *Aristotle* acknowledgeth they will bee strangled.

Fifthly, when they are chilled with cold, lay them in the warm Sun, or near a fire, or if you dare venture, hold them in your hand, and you shall see them begin first a little to stir, then to pant, and the longer more strongly, untill they remit it by degrees as they recover life.

But I trifle out the time to prove by arguments to the ear, a thing so visible to the eye. Hold your hand near to the mouth of a full Hive, and that in the night when they are supposed to sleep, and not to stir, and you shall feel a cool aire come from them. Nay hold a feather, and you shall see it stir to and fro, as if it would be blown away.

Some

Some affirm, that insects have no blood, because they have no heart nor liver. *Pliny* was of opinion, that though they had no blood, yet somewhat analogous or equivalent, for whatsoever is the vital humor, is its blood. Learned Doctor *Harvy* in his anatomical lectures, openly affirmed, that Bees have a heart, (I heard him) which also hee hath since published, although Dr. *Primrose* will scarce acknowledge it, pretending his weak eye-sight, but this being asserted and confirmed by such undeniable experience, I readily subscribe they have a heart, and therefore a liver, and therefore blood, for the heart is the fountain of blood, and hath first blood, and Creatures which have blood have a liver.

Dr Har. exercitat. anatom.

Arist. de genere idem de partib. ani l. 3. c. 4.

Aldrovandus citing *Aristotle* saith, all creatures have both a heart and also a liver, one for the Original of heat, and the other for the concocting of their meat. And again citing *Aristotle de partibus animalium* lib. 3. hee hath these words, *cordis carens nullum animal unquam ortum est.* No Creature was ever produced without a heart: and there is good reason for this assertion, seeing the heart in *Aristotles* judgement is the Original of life, heat, blood, sense, and motion, and nature doth suppeditate breathing or refrigeration for the benefit or cooling of the heat in the heart.

Aldrov. prolegom. in lib. de insectis.

All Creatures which have blood have a heart, and why not, all Creatures which have a heart have blood? but in little creatures the blood is so obscure, that it cannot bee seen as in greater, but onely in the heart (not alwaies there) because of the thinnesse of the blood and the veins, are so little and small, that they can scarce if at all bee perceived, but the heart is the beginning of the veins, and the Original, and fountain of blood, and (as hee saith) the beginning of sense, for living creatures have the beginning of sense, where they have the beginning of motion.

Arist. de hist. animal. lib. 3 c. 10.

Arist. de somno et Vigil.

But yet notwithstanding all this, the liver and the heart is so farre from being the author and fountain of blood (which yet *Aristotle*, and all Physitians affirm) that the contrary plainly appears in the fabrick of the Chicken in the egg, namely, that the blood is the mother of the heart and the liver, which Physitians seem to confesse unawares, when they determine the Parenchyma of the Liver to bee a certain flowing of blood, as if nothing

Dr Allan. de generat. animal. exercitat. 50.

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Idem in eod. lib. exercitat. 19

else were there but coagulated blood, and that the heart (saith hee) is not the author of blood, appears, because his substance or parenchyma is produced, sometimes after the blood, and is superadded to the beating vesicles.

Now seeing it is so apparent that Bees have a heart, then it must follow necessarily, that they must have lungs also (which *Aldrovandus* grants) that these receiving and returning aire may refrigerate the heart, now the lungs receive the Original of their motion from the heart, and with his fulnesse and emptinesse as it is contracted and enlarged, makes way for the egresse or ingresse of air, when it is lifted up, the air comes in, and when it is contracted it goeth forth.

Arist. de Spirat.

That some insects have lungs, *Aristotle* doth implicitely grant, for hee saith, *pulmones habent quæ in lucem fœtum jam conceptum proferunt*; such creatures have lungs which bring forth a living creature conceived in them. Now that some insects do so, is undeniable. *Scaliger* affirms it of a certain sort of flie, of which wee spake before, and it shall bee further confirmed by a discourse of the claw-tailed humble Bee, when wee speak of Humble Bees.

Scalig. de subtil. exercitat. 191

CHAP. XVIII.

Of Bees temperature, Sleep, &c.

Nicolaus Leonicus in quæstion. naturall. 43

Aristotle affirms most insects to bee of a cold temper, his reason is, because they breathe not, and to this N. *Leonicus* subscribes, and saith all insects need little food, because they have small bodies, and therefore are satisfied with little, or rather saith hee, because they are cold and bloodlesse, now creatures which are hot, desire much refreshing, and quickly digest what they eat. So *Aldrovand.* Insects are sufficed with little meat, not so much for their smalnesse as their coldnesse. That this may bee true of some I will not deny, but not of Bees, they are hot creatures, and desire much refreshing, and quickly digest what they eat. Indeed they are very liberal feeders; whosoever shall observe the abundance of Bee-bread that is daily brought into a good hive, which they spend almost as fast as they

Aldrovan. prol. gum in lib. de insectis.

Arist. de Spirat.

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they get (besides honey) and also considers, how much they eat abroad when they gather, cannot but acknowledge that they are great eaters. And *Aldrovandus* upon experience affirms, that many insects are hot, and Bees in particular, and his reason is, because they grieve and violently pain those that they sting. Insects have been noted by the Ancients to feed little, but this hath not been diligently observed, for Grashoppers eat up the green of whole Countries, and silk-worms devour leafs swiftly, and Bees eat in great quantity according to their bodies; which is evident to any that shall observe, what store they carry daily into their Hives, and what little increase there is sometimes, after three months laborious constant working. L. Verul. Silva. Sil. cent. 7. 697.

It is true, that creatures that sleep and rest much, eate little in those times, as Bats, Dormice, and Bees, But saith *Cardan* it is necessary, that Creatures that sleep much, feed much, and by the vertue of the meat formerly eaten in abundance, subsist when they sleep. Card. de Subtil. lib. 9.

All creatures almost, more or less sleep, yea insects sleep *somno tamen brevi utuntur*, but they sleep but a little saith *Aristotle*, surely if at all a great deal, the brain is chiefly the cause of sleep, and such creatures as have not a brain, sleep not. Bees sleep saith *Aristotle*, and hee proves it because they are quiet, as hee saith, all night and make no noise, and they cease not from motion, because they are weak sighted and not able to move, bring a light they stir not, saith hee, but this is false, for they will flye after and into a Candle, or light, like a moth, and burn themselves, but suppose they did not stirre with a light, yet were the argument of no force, they stir not at a light, and therefore sleep, for wee know that many fowls are taken in the night with a light, at which they stir not, although they bee awake, because they see nothing beyond or beside the light. Arist. de Somno et Vigil. Arist. de somno. Idem in eodem. Plin. nat. hist. l. 11 c. 37. Arist. de Hist. l. 4. c. 10.

That they sleep from the beginning of winter to the rising of of *Arcturus* sixty daies together, and eat nothing at all as *Pliny* affirms, is not true with us, perhaps in Northern Countries, where the cold is more intense, they feed little, and sleep for a longer space, which is a principall reason of their so great plenty of Hony. The more temperate winters with us, occasion if there be not the larger provision, a great decay of Bees. For every warm

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warm and sun-shine day, they will flye abroad, and play, and empty themselves, and thereby getting good stomacks return home and feed: whereas gloomy cold and close weather, shuts them in and saves stover, and therefore a smaller proportion will sufficiently supply them untill the gathering season.

That they sleep when they are abroad out of their Hives (on their backs) is a ridiculous fable, least the dew should wet or prejudice their wings, and hinder their flight when they awake, as *Aldrovandus*, and other deliver from the Ancients. And suppose that they should observe this course, yet could they not accomplish their purpose, for from the vapour arising from the earth their wings would bee as much if not more wet, then if they should rest on their feet: however their wings being slimy and (as it were) unctuous, the wet would not much stay upon them.

Aldrov. de insect. lib. 1

Concerning the age of Bees, diverse have been the opinions, some giving them a longer, some a shorter life, *Aristotle* saith, they live six or seven years at the most. *Pliny*, that they never exceed ten, no not by succession. *Columella* also saith the same, *Cardane* saith; strong Bees may continue twelve years. Mr. *Remnant* saith, if they continue in health three years, they may stand twenty, *Mouffet* supposeth, that if they be well cared for, and cured of their distempers, they may live thirty years, and tells us that at *Hanworth*, hee knew a stock continued in the seeling of the house of the Dutchesse of *Somerset* more than three decads of years, and swarmed four times almost every year and therefore doubts with *Albertus* whether they ever dye of age.

Arist. de hist. anim. l. 9. c. 12
Plin. l. 9. c. 3.
Cardan. de variet. rerum. c. 28.
Mouset. theat. insect. l. 2. c. 3

The truth is, notwithstanding these mens opinions, that Bees live but a year and a quarter at the most, for those Bees that seem in *May* lusty, full, brown, smooth, well winged, will by the end of *July* following begin to wither, become lesse, look gray, and have their wings tottered and torn, and bee all dead before the end of *August*. And although their life seem short, yet is it more then double to the Droans, but by succession they may continue many years.

Now what is to bee said concerning the life of the Queen Bee, it is a quere never propounded by any (for ought I know) for

most

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most men concluding that the Bees live many years, have supposed the Queen Bee to continue as long, and her life to bee of an equal extent and date with theirs. Mr. *Butler* that first published the Bees to bee birds of a years continuance, and somewhat more, yet started not this scruple.

It is well known, that some Hives continue ten, nay twenty years, and more, what shall we suppose of the Queen Bee, doth shee survive ten, nay twenty generations; or how comes there a succession of Rulers? I have propounded a question, wherein I shall scarce satisfie my self, it is not strange therefore, if I leave others unresolved.

It is manifest that the Hony Bees are but yearly creatures, and the reason of their short life is their unwearied labours, by daily flying abroad, incessant working, and ponderous burdens, they waste themselves, and wear their wings, which could they renew as the Eagle her bill, they might for ought I know live many years. Now the Queen Bee not working at all, seldome flying abroad, and then not far, not so much in a year, as a Hony Bee in an hour, never tears her wings, wastes her strength, nor makes her self old with labour, so that it is more than probable, that she may live many years.

Otherwise you must suppose her miscarriage ordinarily to be, when her Infants are in their prime, and not departed from her, the elder being able, and ready to succeed her, for if she should miscarry at other times before their birth, or after their Butchery, the whole stock must needs miscarry.

CHAP. XIX.

Of Bees fighting and robbing.

BEes when they are abroad at their work, or remote from their Hives and common treasure, are very gentle and peaceable, so that in their private wrongs, how ever you use them, they will not resist, if by any means they can get away, sometimes at their waterings they will contest one with another, but are quickly quieted, and parted, whereas at their Hives they are fierce and furious, they will neither give, nor take quarter. Arist. de hist. lib. 9. c. 40.

Upon

Upon the union of two swarms, sometimes (but it is rare) there is at first, especially if the companies bee somewhat equal, a violent charging each of other, and the Leaders (for other extraordinary Trumpeters have they none) with a shrill and loud noise animate and encourage their several companies boldly to stand to it, and not without cause, for it is their safety, or destruction that all the conflict is for, and as soon as they conclude who shall govern, which for the most part is determined in few hours, then they will all cheerfully as one body, live and love together.

Aristotle writes of certain Serpents in *Mesopotamia* which do great mischief to strangers, but do no hurt at all to the inhabitants: And Mr. *Herbert* tells us, *Cashan* in *Parthia*, is much infested with Scorpions, but a finger long, but of great terror in the sting, inflaming, such they prick with their invenomed arrow so highly, that some dye, none avoid madness a whole day, but which is remarkable, they never hurt a stranger; but Bees irritated near their Hives, are at equal enmity with strangers, and domesticks; such as are daily conversant with them, if they bee but a little provoked, shall finde no favour, so that no creature is so violent and revengefull; but although their spight and malice in their rage is as much to men and beasts, as to their own kinde, yet seldome do they work an equal hurt and mischief; and indeed the opposition is bittrest between those that are nearest, for there is a special implacable hatred.

Mr. Herbert.

Avicen.

When two swarms settle together, and eagerly bid defiance each to other (this falls out seldome, yet sometimes) alwayes expect a martial and deadly skirmish.

When a company with their Leader forsake their own Hive, and enter into another, their difference is irreconcileable, their hostility unappeaseable, but by the death of one of the Commanders; for things that are in their nature contrary, can never be reconciled, as two Commanders in a Hive.

And grapling so in clusters head-long fall
Hail from the Winters sky falls not so fast,
Nor shaken Oaks so thick do shed their mast.

Virgil.

I had once two large swarms, that rose almost immediately one

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one after the other, and before the first were fully settled, the last came and settled with them; and began presently to kill each other most desperately. As soon as I had notice of it, I caused them to bee hived that were yet alive, half being slain in little more then a quarter of an hour; but the remainder being hived, yet ceased not their quarrel (although I threw strong drink upon them, and did what I could to appease them) yet they still continued the battel, that before night there was not above a pinte left.

But although two companies upon their congress and coming together with equal forces bee thus desperately cruel; yet when they rob, and plunder, they shew less rage and ferity, but are not less mischievous and hurtful.

Bees are the most dangerous enemies to Bees, they have many other, but none so hurtfull.

Some are too favourable in their censures, and clear them from robbery. Bees, saith *Aristotle*, hunt after nothing, but labouring painfully, gather all they possess. And *Scaliger* gives a reason for it, because they feed not on flesh, nor hunt abroad to plunder other, and therefore expect a reciprocal carriage from others; but by his leave, no greater robbers of Bees, than Bees, so that though hee return an *Ignoramus* to this bill of robbery put up against them, yet upon better evidence I must finde it.

Aristot. de hist. Animal. l. 9. c. 64.

Scalig. com. in loc.

The greatest danger that befalls the Bees, comes where it should least come, from the Bees themselves. Bees are loving and sociable creatures, and therefore wee might think should converse one with another in love and peace; but instead of support and protection, they do finde ruine and destruction from their own kinde.

Pliny saith, when their provision fails, they invade their neighbours and rob them; they fight not then for their right, but to get a booty, and under colour of warring, make a trade of robbing. And another saith, When they want meat, they forcibly rob their neighbours: but the matter is quite otherwise, for usually the lustiest, and the best stored, that need nothing, will bee first prying into their poor neighbours weakness. They set not upon an empty Hive, seldome upon an ill furnished Hive, but upon some well provided stock, where the fatness of the booty is a fitness to their desires.

Lilii Greg. Gyrald. t. 1.

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Remisse opposition provokes fiercer attempts, they are impudent when they meet not with bold resistance, only resolution can make them give back, give over, they will make many tedious and stintlesse onsets, as if the strongest fort were not able long to hold out.

They first come with a few and make an assault, and by the opposition conclude the issue, but still renew their numbers, and although they loose many in the conflict, yet will they persist, and not prevailing that day, will the next morning before the true Bees bee stirring, venture in, and if the opposition be not the more resolutely maintained, they will come so numerously, as waters at a breach, that resistance is to no purpose, and then they do fall to plundering, going and returning until it bee dark, if they have not carried away all before; and so continue till they leave not a drop of honey; to whom often the true Bees (seeing their condition otherwise desperate) will joyn themselves, and accompany them to their Hives, and help to carry away their own goods.

As long as the opposition lasts, they are very fierce, and untill they have overcome, mercilesse, but having once made a forcible entry, they quickly give over killing, and fall to plundering.

Sometimes many stocks will bee up in arms together, and then it is no easy matter to compose and quiet them.

Virgil. *Wouldst thou this fight and furious heat allay;*
A little dust thrown up will part the fray

Yet this often avails little, it is better by prevention to avoid it, by narrowing their doors when once mid-*July* is past, that but a Bee or two may enter at once (understand it of the poorer stocks) but if this hath been neglected, and they bee together by the ears, then make a smoak of mulch and wet straw, and throw water about the Hive door where the greater conflict is, straitning the passages of those that are robbed sometimes (if the skirmish bee violent) stopping them up close, and throw water upon those that eagerly seek to enter, and in less than an hour finding no entrance, and trouble without, they will return home. After sunset open them, and all the robbers that are

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are alive will go to their own Hives. Examine their ſtate after the robbers departure, and if you finde but a few Bees, it will not bee worth your labour to trouble your ſelf for their preſervation, for at one time or other they will bee robbed, if not, they will never thrive.

But if there bee a conſiderable quantity of honey ſtil left, and alſo of Bees, then ſtop them up again cloſe, allowing them aire through a quil; but bee ſure you ſtop them up very well, for in the day time they will bee gnawing and mineing to make a hole out, and the robbing Bees will bee ever and anon viſiting the door, to ſee if it bee open, which if they finde (if you do not preſently ſtop them in again) the laſt danger will be worſe then the firſt. After ſun-ſet allow them a paſſage to go forth, to take the air and empty themſelves; take this courſe ſeven or eight daies, and when you give them a free paſſage in the day, let it not bee untill nine of the clock, and the firſt and ſecoad day that you open them, ſtop up their enemies, that they may not trouble them who are not luſty, as at the firſt by ſhutting in, and in eight days their enemies will forget them,

Some preſcribe to caſt flour on the Bees that you let out, that ſo you may know the plundering Hives, which you may eaſily otherwiſe, but if you do not, take this courſe, and obſerve whither they go, when you once know the robbing ſtock, with a long pen-knife, through the Hive, cut the combs towards the top, that ſo they may find work at home to ſtop up what you have broken.

Although they will not admit of ſtrange Bees in their Hives, yet diverſe ſtocks will conſpire together, and agree well to undo their neighbours: and uſually like the fox they prey furtheſt from home, ſeldome robbing their next neighbours.

The chief times of robbing are Autumn and the Spring: uſually about the end of *Auguſt*, but in dry years, about a fortnight before, when the honey gathering is almoſt over, then do the luſtieſt (being moſt numerous in Bees) practiſe it on the old ſtocks, ſuch chiefly that have overſwarmed, and have but a few Bees left: on ſuch alſo as have loſt their Leaders, who are careleſſe to reſiſt, and will quickly go along with them, and help to carry their own goods. There is no way to ſave ſuch, but as I preſcribed formerly.

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Another time of robbing is in the spring, and then those poor old stocks that escaped in Autumn must bee carefully watched, poor swarms also shall now bee tried, until the year grows up, and the flowers bee plentiful.

Let all such have (as I ordered before) very narrow doors; swarms are more difficultly prevailed against then old stocks; for though perhaps they have not wrought down to the board, and so the entrance be more easy, yet being usually more multitudinous, they will hold out longer: whereas old stocks although they have more provision, yet have fewer souldiers, and therefore are quickly overcome and plundered, and more easily in the spring then before.

Once, if you perceive, that waspes in multitudes, or robbing Bees have made a breach into an old stock, delay no longer, but take them, for although by your circumspect care in stopping them up, and narrowing their entrance, you may prevent their present destruction, yet will they not escape in the spring: but if it bee a swarm, there is some hope, that by your care, you may prevent their present and future destruction.

CHAP. XX.

Of Bees, Enemies and Sicknesses.

ALl Common-wealths are infested with enemies, and the Common-wealth of Bees as much as any other. Wee have already spoken of the worst, namely Bees.

In the next place let us treat of Mice, which are also very hurtful and destructive. Sometimes they get in at the door, when it is left too large and open, sometimes they make their way through the Hive, most commonly near the crown of it, and they are no sooner in, but they presently share down the Combs, and eat the honey; and if they be let alone, will often make their nests among the Combs. To prevent them, bee carefull of the door; often, especially in the winter, view your Hives. If you see any crumbles of wax at the door, bee sure there is something amiss, look therefore warily, and keep traps baited about your stalls.

Waspes

Waſpes in Harveſt do great miſchief, ſometimes deſtroy whole ſtalls. At firſt when they are new come, they content themſelves with dead Bees; but after a while they grow bolder, and venture into the Hives, and moſt of all in the cool mornings when the Bees ſtir not. And after they have found the way they will never give over, but invite their fellows, nay, they are often the robbing Bees harbingers, who make an end uſually where they beginne. And although there bee an antypathy between them and Bees, yet will they readily joyn together to plunder the poor Hives. They are naturally hardier and ſtronger than Bees, one waſpe will often violently break away from two or three Bees, yet many of them come ſhort home, being ſlain in the Hives by them.

In the ſpring at your watering troughs, or other places where your Bees drink, and on the ſouth-ſide of your pales, you may ſee the mother Waſpes, drinking or gathering, kill them if you can, and know that you deſtroy as many neſts as waſpes, for every mother Waſpe makes a neſt. After when they have bred let their neſts bee ſought our, and deſtroyed, burn them or ſcald them; or (which is ſooner done) in the evening with an iron ſpade (having before obſerved which way they go) ſeek for their neſt by putting it into the ground, and you ſhall know when you meet with it by the hollowneſſe, then looſen the earth round and ſtamp it in. Set glaſſes with ſtrong worte, ſweetned water, or ſweet fruit: or rather pots covered with a paper, with a hole in the middle, and that is the beſt way, for in the other the Bees will be often drowned.

The Hornet is as hardly cenſured as the waſpe, but ſhee is nothing ſo dangerous; ſhee now and then eats a Bee, but the waſpes deſtroy whole Hives, her manner is to flye about the Hive, and when ſhee ſeeth a Bee reſting her ſelf upon the ſtool, ſhee preſently ſeizeth upon her, and carries her away in her feet, as the Hawk doth a bird. Deſtroy their neſts if you can without danger, if it be no large hole, in the evening having made a woodden plugge, ſuddenly knock it in, and you are ſure of them, or ſet lime twiggs before their holes, and thereby you will much diminiſh their numbers.

The Titmouſe is more hurtful then the Hornet, I mean the great Titmouſe called a Colmouſe, with a black head, for ſhee

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will eate ten or twelve Bees at a time, and by and by be ready for more; she feeds her young ones also with them. She eates not the whole Bee, but divides it in the middle, and pulls out the bagge of hony with the entral, letting drop the skinny outside.

When she comes to the hive and findes none, she knocks with her bill at the door, and as soon as the Bees come out to enquire the cause, she catcheth first one, and then another, until her belly be full; in the Spring she watcheth for them in the Willow and Sallow Trees, and takes them when they are at their work. Destroy their Nests in breeding time, and shoot them in Winter.

The Spider is a great devourer of Bees, if the Hives bee empty, or have but a few Bees, shee will make her webs within: but for the most part if it bee a penthouse, shee lies between the boards where they fold one over another in the day. And in the night shee weaves her nets right before the Hive, wherein the Bees are quickly ensnared.

Virgil. ——— *Close*
About the door her net-like cobwebs lose
The Pallas hated Spider Spins.

Kill the Spiders if you can come at them, and in the mornings beat down their nets. Many also spread them in the flowers, and among the brambles in the hedges, and they lye in ambush in the cod or center of them out of sight, and no sooner doth a Bee or flye strike them, but they are upon them and kill them. They will grow quickly greater then large Pease by eating of Bees.

The Woodpecker is by many indited, I think not much guilty, yet I will not discharge her.

The Swallow hath an ill-name, but I could never observe any great hurt done by them.

Chaucer assembly of Fowles. *The Swallow murdresse of the Bees small,*
That maken hony of flowers fresh of hue.

The

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The Moth with her mealineſſe ſomewhat offends the Bees, but except the Hive hath very few Bees, or be altogether empty, ſhe doth no great hurt; yet then ſhe will lay her blots in the Combs, which will ſpoil and conſume them all. Ordinarily ſhee breeds her young by the heat of the Bees under the skirts of the Hive, and the dawbing ſnails will ſometimes creep into the Hives, and much trouble the Bees with their coldneſſe and ſlimineſſe.

The Toad is thought to bee dangerous, though ſhee doth but lye under the ſtool, and ſometimes to deſtroy them, as the Frog when they drink, but I never obſerved it.

The Piſ-mires are often very hurtful, troubling the Bees, and devouring their hony, ſcald them in their neſts, and tarr the places where they uſe to aſcend. *Albert.* ſaith, mountain *Origanum* dried and beaten to powder, if it be ſtrowed on their neſts, makes them to forſake them. Albert. de mirab. mund.

If the Ants holes be ſtopt with *Heliotropium*; they will certainly dye. Mizald arcanorum l. 1.

Bears in ſome Countries do greatly endamage the Bees, and Bats, thoſe that breed in trees, ſeldome are injurious to thoſe in Hives.

Sparrows feed on Drones, but meddle not with the Bees. At firſt I was ſuſpicious that they deſtroyed the Bees; taking notice therefore of their often flying to the Hives, and from thence to their neſts; I cauſed the young to bee taken, and found their crops full only of Droans.

Ferrets delight in honey, and therefore ſpoil Bees, but this *Scaliger* denies, for hee ſaith, that he hath offered them honey, but they refuſed to taſte it. Ariſt. de hiſt. lib. 9 c. 9. Scal. com. in loc.

In *Guinea* are many Bees, but all wild, breeding in trees, and receive much hurt from a kinde of great black Ant, which make holes in the earth like field Mice, and much damnify the Bees by eating both hony and wax. Pur. Pilg. 2 part l. 8. c. 2.

In the Countrey of *Sofala*, there is a bird called by the Cafers *Sazu*. It is of the bigneſſe of a Linnet, and almoſt of the ſame colour, with a long Bill. The chief food of theſe Birds is wax. They ſeek about the woods for ſtocks of Bees: And when they have found one that hath honey, they Jovondos Santos livero pin. da Ethiop. oriental c. 24.

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they come into the waies to seek for Passengers to shew it them; which they do by crying before them, and beating their wings from bough to bough untill they come to the Bees. The naturals who are acquainted with their manners, presently follow them, to get the honey. And the advantage that these birds get is to eat the wax they leave, and the dead Bees. They will come into Churches at the windows, and if they find wax candles, eat them.

Purchas Pilg. fourth part, l. 7. c. 1

The Hirara is like the Civet-cat (though some say it is not) they are of many colours, *viz.* gray, black, and white, They eat nothing but honey. And in this they are so terrible, that let the hole of the Bee-hive bee never so little, they make it so big that they may get in, and when they finde the honey, they never eat it, until they have called their yong ones. And then the old one going in doth nothing but bring out the hony, and give it to the young ones. A thing of great admiration, and an example of great charity.

In the *Island* of *Barbadoes*, and the adjacent Islands, are certain birds bigger than Sparrows, with a very great head, called by the English Logerheads and Counsellors, they live naturally on all sorts of Flies, and are great destroyers of Bees, for they have made a total destruction of all that have been carried thither.

Palladius de rerust. l. 1 Columel.

Crabs burned are hurtful to Bees, and also the smell of dung, and places subject to Eccho's, for Eccho's and great noyse much exasperate them.

Isidorus Hispalen, lib. 12 Etymol. c. 8

There is no such creature called Clerus (as some) bred by Bees, Moths are bred in the combs where are few or no Bees, in lusty hives they are bred under the verges or skirts of the hive, but generated of Moths, not of Bees, as *Columella*, and from him *Aldrovandus*.

I. Miletius religio Borusser. Huldrichus Schimdel.

The Martins in *Russia* live for the most part on the tops of Trees, and greedily devour the Bees.

The Crocodile is much delighted with, and desirous of hony, Saffron is their antidote or preservative (which it seems he cannot endure) to safe-guard the Bees.

The dung of Poultry is supposed to be very offensive to Bees, but I have not taken notice of any such effect, although

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though I have observed in several places, that for sheker the Hens would repair to the Hives (such as stand under Penthouses) and dung among them, howsoever (if you can) keep them away, and be sure to let no Hens sit under the Bee-boards, for the Bees wil sometimes come to them, which the Hens wil catch in their bills and kil; which other Bees smelling wil seek to revenge, but with their owne destruction; I have knowne above a quart of Bees killed thus by a Hen in a little space.

Lightning, especially Thunder affrights, and much disturbes them, saith Mr. *Mouffet*, and to confirme this tells us, that in the moneth of *August*, one thousand five hundred sixty six, being with the Dutchess of *Somerset*, desperately diseased, suddenly, (on occasion of a stroke of Thunder) under the next Bed-steed, he and others heard a murmuring and shril noyse, but at first knew not that Bees were housed in the seeling of the roome, underneath where they had inhabited thirty years. Mouffet theatrum insector. lib. 1.

And the day following (for want of sleep, as he supposed) flew up and down trembling, and making more than ordinary noyse, and in a distracted manner struck themselves against the windows, were extreamly provoked against the Family more than at other times, so that they are impatient of fear, as he concludes; as also of disturbance by night, when he saith they all sleep, and not at all by day; when indeed they sleep not all, for some watch, and make a constant buzzing (in full Hives) all hours of the night, until Autumnes cold forceth them up within the Hive, and makes them to lye close compact together among the uppermost combes; yet then (if they be asleep) they are presently awakened, not only with the least touch on the Hive, but of the ground near it. Nay, if you breath before the Hive, though at a yard distance, they wil presently come forth with a great noyse to examine the cause.

Snow is very hurtful when it dissolves with the heat of the Sun, for the Bees with the heat wil be tolled out of the Hives and they are no sooner forth, but they are dazled, and blinded, and cannot finde the way in again, but flying a while up and down being weary, think to rest themselves on the Snow, which they no sooner touch but they are killed; be sure therefore at such times to shut them in.

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Sharp frosts, nipping blasts, chilling aires, drifling fleet, boisterous and cold winds, in the Spring, are very prejudiciall for the Bees, coming home weary and laden, are beaten down after in multitudes, and (unless the Sun shine out presently, or the winds calm) never recover the Hives. Let your Bee-garden be well defended (take heed of an eddy wind from some house or building) and let them stand low; I have observed, that out of six Hives, standing two foot high, and in the eddy of the wind, I have lost more Bees (being beaten down, and miscarrying on the cold ground, then out of sixty Hives, standing not much above a foot from the ground.

Arist. de hist. Animal. l. 8. c. 32.

Bees are sick in dry yeares, and in such times when the flowers are blasted. Concerning Bees sicknesses, hear what *Virgil* saith.

But if their bodies bee diseased (as Bees
By life are subject to our maladies)
Which may by signes infallible bee known;
The sick streight lose their colour, and are grown
Deform'd with leanness; they in woful wise
Bear forth their dead with solemn obsequies,
Or cloister'd else within their houses they
Sadly contain themselves, or lingring stay
About the door, in clusters taking hold,
Famish'd, and faint, and feeble by the cold.

Columel. l. 9.

The murrain among Bees is very rare: other diseases they are subject too, especially to a scowring, by gathering, or feeding on Tithymal, and the blowings of the Elm, and therefore in those parts of *Italy* where there are many Elms, there are but a few Bees. I deny not but the gathering of the Elme may bee dangerous in *Italy*; but I am sure in our parts, which are plentifully stored with Elms, they are no way prejudicial: Indeed they seldome gather of them.

Much ado is made by many Authors concerning Bees sicknesses, and the remedies. They tell us that they are subj. & especially to a *Cacochymia*, *Blapsigonia*, *Marasmus* and *Diarrœa*. Whereas in all my long observation, I have found no proper sickness; accidentally indeed, when they are necessitated for provision

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vision, or not well defended from winds and wet; they have an ill digestion, because they have little to eat, and they lose their brood, because they have not wherewith all to feed them; and their natural heat is wasted for want of meat to maintain nature; and they have sometimes a scowring not having meat proper and good for them, they then will sometimes gather of purging flowers, which doth not strengthen them, but make them more faint and weak.

And yet to all these various effects proceeding from one and the same cause, have the Ancients given sundry and divers names, as if the causes had been as diverse. *Varro* therefore giving directions what a man should observe that buyes Bees; mindes him to take notice, if they bee numerous, if they bee shining, and full; whereas if the combs bee not set in an even posture, if the Bees be hairy and thin bodied, they are to be refused, all which are but effects of hunger. Varro de re rust. l. 9.

In a word, if you desire to have your Bees thrive, and prosper, keep them well from winds and wet, heat and cold, destroy their enemies, and let them enjoy a sufficiency of food gotten by their own industry; and if there be a want in some, timely supply them, and doubt not of, by Gods blessing on your endeavours, the increase and prosperity of your Bees.

CHAP. XXI.

Of the Hony-dew.

THe Hebrew word for Hony-dew is יְרִקוֹן *jeraken*, which comes from יָרַק *jarak*, and signifies *spuere, exspuere, humorem evacuare*, as if it were *saliva siderum* (as *Pliny*) an excrementitious moisture, which the stars spit down on the fruits of the earth. By this word also is signified the Kings-evil. Buxtorf. lex.

In Latine *Rubigo* is a Hony-dew, as well as rust, a name from the effect, shewing how that by a hurtful touch, it stops the growth of some fruits that are obnoxious to it, making them to rust, eating out their state and substance, as a canker or rust J. Rowlandson Gods blessing in blasting.

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Ribera com. in Amos c. 4. fretteth iron; so that what is a disease of mettal is figuratively transferred to corn, and such like things, because it destroyes and consumes them; for with too much moisture the stalks wax pale, and the corn is turned to dust; but hee was much mistaken, not distinguishing between smutty and mildewed corn, for corn affected with the mildew is not turned into dust, but shrunk up, and prevented of its radical moisture, so that though it come to maturation (for it will ripen, and is best for seed) yet not to a full bigness and dimension.

Of the cause of smutty corn, I will speak briefly afterwards.

Some conceive shrinking of corn by the Hony-dew to bee thus occasioned. In fields less pervious to clear and strong winds (as in lower grounds, and narrow places between woods and hills) there falls often sultry and foggy mists, and those covering too close the fruits of the ground under them, as under thick mantles do cast that corn or kinde of grain which is subject to this malady, as it were into an unkindly sweat, at such times as the ears thereof are not yet sufficiently filled from the root, by which faint sweat is vented that sweetness that should feed the ear. Now this sweetness once exhausted or drawn out at the stalk, or straw, sticks close unto it being burnt, or made adust by the extraordinary heat of the Sun, as it happeneth especially in the Canicular dayes, which (as it may seem) made the *Romans* sacrifice a Whelp or Puppy to Mildew. And this they did to prevent it, or to drive it away, if it had seized on their corn, That this prejudice is chiefly caused in narrow and close grounds wee grant, and seldome comes on hills, or large champion grounds. But yet it brings not damage to the corn this way, but rather thus. The corn in close places when the Hony-dew descends, not being ventilated and shaken with winds, the Hony-dew as it dries, becomes viscuous and clammy, and sticks close to the straw, and by the heat is hardened and congealed, and thereby stops the radical moisture from ascending, and so the ears being no longer fed, shrink and wither. As hard binding or tying of a mans arm, causeth (if continued too long) by stopping the circular motion of the blood, a mortification or gangreen. It comes not from any malignancy, as some, nor because that the oily viscuous quality, that is in it

Ovid de fast. l. 4. Hier. Romano de la Repub. gen. l. 2. c. 7.

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it stops the pores of the husk wherein the corn lyes, and deprives it from the aire, and consequently from nourishment, this is not the cause, but what was delivered before. But hee concludes it is, and therefore commends bearded Wheat, because the beard shoots off the dew, that it doth not so easily insinuate it self into the ear, and likewise causeth the ear to shake, by the least breath. *Credat Judeus Apella.* Howsoever had hee been acquainted with the inconvenience of bearded Wheat, he would rather have stood to the hazzard of a Hony-dew. First large letter in Mr. Hartlibs Legacy.

For cure Mr *Remnant* prescribes, when you perceive by your Bees that a Hony-dew is fallen, to draw a cord over your Wheat as fast as may bee, before it bee dried on by the wind or Sun. One in one furrow, and another in another, two or three furrows distant as they can well reach. One at one end, and the other at the other end of the cord, for the least motion will shake it off, it is so exceeding thin when it new falls. I dare not say (as some) that this can bee done with good profit, for *materiam superat opus*, the charge will exceed the benefit. Such as sow sixty or eighty Acres of Wheat must of necessity imploy many men, and perhaps many dayes together, for Hony-dews in a dry season fall frequently, and sometimes twice a day, and therefore it must be oft reiterated.

And the loss by it, is seldome great, it is rare to have one Acre in an hundred prejudiced by it, and yet we consist of inclosures, and much wood-land.

Pliny affirmed the Hony-dew to bee either the sweat of the heaven, or the slaver or spittle of the stars, or the moisture of the aire purging it self. Plin. Nat. hist. l. 11. c. 12.

Gualter saith, It is caused by the inconstant change of the aire, when immoderate heat cause raines, and cold raines expel heat. Gualter in Amos Hom. 11.

Dr. *Lake* saith, That too much moisture is the cause of it. Dr Lake in 1 King 8. 37.

Mr. *Butler* judgeth the Hony-dew to bee the quintessence of all the sweetness of the earth, meaning as hee explains himself, the quintessence of flowers, because when the year is backward in his fruits, the Hony-dews are alwayes backward, coming only at such times, as the flowers have the most solid and best juice.

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Secondly, because in more hot and southerly clymates, where the fruits are more forward, the Hony-dews are more timely; in *Italy* not untill *May* bee entred, but hee saith not usually with us untill a month after, whereas if the season bee warm and dry, often by the beginning of *May*, and sometimes a little before, alwayes in *May*, there are with us many swarms.

Thirdly, because the Countries that have store of the best and sweetest flowers, have ever the best Hony. It is true, that Hony is finer or courser, according to the flowers that the Bees gather of, but this rather concludes (against him) that the Bees gathering is not chiefly, no not very much from the Hony-dews; for it cannot (almost) but be supposed that the exhalation must remain sometimes in the aire, before it bee concocted and fall, in which space either ascending, or descending by the motion of a gentle breath, it will be carried some miles from the place where it was first exhaled, so that grant it extracted from the flowers, yet that which was exhaled from good and fragrant flowers, may fall in woody and heathy places, and that which was exhaled from heathy ground according to the motion of the aire, may fall on good land, his rule then cannot bee constant. And some years, when there are few or no flowers, yet are there many Hony-dews, as 1652. so that the matter of them could not bee extracted chiefly from flowers, and in extraordinary wet years, as himself instanceth in the year, 1613. the Hony-dews fell not untill the end of *August*, when most flowers had done blowing, and those that were, had a very weak and faint juice, and therefore it is not probable, that there should bee a competent matter for their production chiefly out of flowers.

It is agreed by all, as far as I can search, that the Hony-dew consists of vapours raised up into the third region of the aire, exhaled from all lower bodies (not onely flowers) both earth and water, which vapours being purged from the earthier and drossier matter, and throughly digested by the heat of the Sun, and after a sort made fatter by the cold of the following night, are thickned, and so condensated, fall down on the earth, trees, and flowers.

Arist. de hist. l. 5. c. 22. Bees make Hony of the Hony-dew, saith *Aristotle*.

Butler

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Butler saith, The greatest part of the purest Hony comes from above.

Seneca saith, It is not yet evident whether the moisture that Bees gather out of flowers be presently hony, or whether by a mixture or propriety of their own, they change it into hony. Sen 84. Epist.

Aristotle before the rising of the *Vergiliæ*, denies that Bees gather any hony, but this is an apparent errour, They gather much hony, when there are Hony-dews, but yet more before any fall, if you respect the shortness of time they gather it in. Bees gather hony more or less all Summer, but least in Autumne, because the great dews and frequent showers, corrup tthe native hony which is bred in the flowers; and yet *Aristotle* acknowledgeth where there is plenty of Ivy which flowreth in the end of Autumn, the Bees gather much hony, but wee finde it not.

That great plenty of Hony comes from above, is acknowledged, and that the Oak among trees is principally instrumental to retain and keep the same on his smooth and solid leaves: yet I affirm, that there is a greater proportion collected from flowers, than from the Oak, and all other sorts of trees, I understand from the leaves.

This indeed is altogether gain-said by *Aristotle*: He delivers, that Bees gather not hony of flowers, but chiefly of the Hony-dew; and his argument is, because in a day or two, when the Hony-dews fall, some combs will be full, and in the end of Autumn there be flowers, but no hony, if any Hive bee taken, driven, or gelded, hee saith they would gather hony, if any were to bee found. Arist. de hist. l. 5. c. 19.

Wee are to know, That as great store of hony falls from above, so there is a native sweetness, or hony, in flowers, the Spring and Summer chiefly, which is not to bee found so plentifully towards the end of Autumn, because the flowers at that time of the year are weak and spent, and afford little, and that little, is usually exhaled with immoderate heat, or spoyled with frequent raines, or great dews; so that there is little, or no advantage at all from them, in respect of hony. Some *Sandaracha* indeed the Bees gather then, but that will not last long, therefore of necessity when Bees are late taken, for want of food, they cannot live long.

If

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If Bees gathered hony chiefly of the Oak, which almost alone is retentive of the hony-dew (from flowers he denied they gathered any hony) how comes it to pass that hony-dews falling late in the year, as in the years one thousand six hundred and thirteen, and one thousand six hundred forty eight, almost two months after the usual time, namely, in the latter end of *August*, when there fell divers hony-dews, but the Bees were little the better for them, except only in the Heath Country, when the Heath-flower was in his prime, and there those late hony-dews made their fat stalls, but in other places the Bees generally miscarried.

If they did principally gather of the Oak, the leaves thereof were then as retentive of it, as at Midsummer, but rather hereby it appears, that the hony-dew is received into the hollow sockets of Flowers, and there long contained, until by the Bees it be extracted.

Hony-dews therefore falling late when most Flowers have done blowing, not having any proper place to contain them, are, either quickly washed away with the raine, or exhaled with the Sun.

Further, that Bees gather hony of flowers is manifest, in many Islands where grow no Oakes, nor yet other Trees, nor yet are near them by some miles (as the Island of *Fowlness*) yet Bees thrive very well, and yeeld ordinarily a greater increase of hony than in other places.

Pliny saith, the Bees gather the hony-dew from the Elme, Teile-tree, and Sallow; but our Elmes are not retentive of the hony-dew, nor yet our Sallows often, sometimes a little; more plentifully is the Hop, and would be very beneficial to the Bees, were it not for the bitterness of the leaf corrupting the hony; Chery-trees (especially the wild Cherry-tree) are retentive of the hony dew, and thereupon curle up the leaves, and so contain it longer, but to their owne prejudice, for the radical sap or moysture is thereby checked, and ascends no more, and oftimes their tops wither and dye, but the Oak of all others most plentifully affords it; the great Maple also (vulgarly called the Sycamore tree) the leaves of other Trees are more spongie and porous, and drink it in as fast as it falls.

L. Verul. Silva Sil. cent. 5 496.

The *L. Verulam* makes a doubt whether any cause be from the

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the Oaken leaf it self, to concoct; or whether it be only that the leaf is close and smooth (and therefore drinketh not in the dew, but preserveth it)

That which in Scripture is called Manna, by the wisest of the Greeks was called Ἀερομέλι, a hony-dew; and *Celsus* in his Physick saith, by the *Syrian* dew is understood that which by a strange or forrein name is called Manna. Cælius Rhod. Lect. Antiq. l. 21. c. 3. Idem. lib. 25. c. 25

The present Manna, and that wherewith the Children of *Israel* were fed forty years in the Wilderness, differ not much from the hony-dew.

First, That Manna of the *Israelites*, and the manna used by Physitians differ not much, *Fr. Valesius*, and also *Io. Fr. Picus* Earl of *Mirandula* attests the same in certaine learned Verses, and *Lemnius* agrees hereto, saying, the Manna now in use by Physitians is not much unlike the Manna that the *Israelites* fed of. Fr. Vales. de sacra. Philosoph. c. 87. Levin. Leminus Herb. bib. explicat.

The Hony-dew and Manna doe not substantially differ, the Dew is not Hony except it be gathered by the Bees, concocted in their bodies, and condensated (by their heat) in the combes; for when it is thickned of it self, it is called dry manna; but if it be not coagulated it is called liquid manna, as a congealed dew, viscuous, and very pleasant to the taste, of which sort is that which is called Cedria, mentioned by *Hippocrates*, and it is the same which the Hebrews call Manna; it is plentifully gathered of the greater Cedars on *Mount Libanus*, and *Mount Sinai*. Hippocrat. lib. de vulneribus. Pet. Bellonius. lib. 2. observat. c. 25

The Characters of the present Manna agree to the Jews Manna; Exod. 16. 14

First, it fell on the ground like a hoare Frost, in the night.

Secondly, the taste thereof was like Wafers made with hony, which agrees with the manna now in use.

Thirdly, it was gathered in the morning, before the Sun waxed hot, for the heat thereof did dissolve it, and make it to evaporate and vanish away.

Fourthly, if it were kept, it bred Worms; I was informed from a learned Gentleman, that the Hony-dew hath bred Worms before night, of which he was an eye-witness in our Country.

Some gather the excrements of Bees (of a yellow colour, and

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Levin. Lemnius. Herb. bib. explicat.

hony taste) which they finde near the Hives, and some ignorantly suppose to be thickned by an aerial concretion; but this cannot be, for the excrements of Bees are always liquid, and fluid, and if there be any reality in this report, It must bee the Bee-bread, whereof much is yellow, and all of a hony taste; it is gathered in little round parcels as bigge as small pins heads, but they are brittle, and broken, will not easily coagulate, for they are not clammy; and the Bees let many fall at the Hive doors, if the entrance be small: but they must be very fools that will take this for Manna, much more they that wil be cozened with the excrements.

It hath been questioned, whether Manna was knowne to the ancient *Grecians*, some deny it, because the name is not found; others affirme it, as *Guido Pannyrollus*, that Manna was known to them, but not under the name of Manna (which word the *Arabs* borrowed from the *Iews*.

Galen lib. 3. de aliment. facult. Amiretus de Asiæ ponderibus. J. Langius l. 1. Epist. Medic. 64

Galen speaking of the same, acknowledgeth that in his time in *Asia*, this kind of hony was found so plentifully on the leaves of Trees, that the inhabitants said, *Jupiter* rained hony; and long before *Galens* time, *Amiretus* hath exactly described it under the name of aery hony, as *Jo. Longius* affirms; and the reason of this name is evident, because hony like a dew falls from Heaven, or the Air before day-light; for when the exhalations are elevated from the earth, and the waters by the heat of the Sun, and then being perfectly attenuated and concocted, are thickned, and congealed by the cold of the night into hony, graines, or sand, they stick upon herbs and leaves of Trees (sometimes on stones, and the ground) The inhabitants therefore spread Hides on the ground, and beat the Trees, and that which falls (like hony) they gather, and put into earthen vessels, where in a short time it hardens, and becomes as it were like sand.

Matthiol. comm. lib. 1. Dioscorid. c. 73 Mesue lib. 1. de simpl. c. 8.

It is like a kind of Gum, as *Fuchsius* delivers, and *Matthiolus* confirms the same; and *Mesue* also saith, the *Arabian* hony is a dew falling on Plants (and Stones) whose matter is an elevated vapour, which hath its digestion and maturation in the air, when it is equal and propitious, with fortunate aspects, but it is diversified according to the diversity of things on which is falls, falling on plants it participates of the nature of Plants, so that the best hony is usually where the most temperate Plants grow.

Galen. lib. 3. de alim. fac.

Now

Now if *Galens* description of his Airy hony be compared with this, it accords in every thing; and *Galen* in the same place saith, that this Hony-dew, or Manna, is so like to that hony that the Bees gather of, that they have one and the same matter, namely dew.

Valerius Cordus endeavours by many (but not invincible) Arguments, to prove that they differ; with whom *Hen. Salmouth*, and *Guido Pannyrollus* concur, and accord. Valerius Cordus Annotat. in Dioscor. lib. 2. c 104. Guido Panny rollus Nova reperta, l. 2. tit. 6.

First, the Bees hony, saith *Cordus* is found at all times of the Spring, and Summer, but the Hony-dew (and also Manna) but sometimes and seldome.

I answer, that there is a native sweetness in some flowers at most times of the year, and plentifully in a mild and forward Spring, but yet notwithstanding the Bees gather much hony, when the hony-dews fall.

Secondly, the Bees hony is found both night and day in the Flowers, but the hony-dew only in the morning.

I answer, It is true, that the Bees gather hony out of the flowers a great part of the day, but there is (besides the native hony) an addition of hony from the hony-dew in the cells of the flowers, where it is preserved longer than on the Oaken leaves, being there obvious to every drying blast, and exhaling raine.

And so saith the *L. Verulam*, Flowers that have deep sockets, doe gather in the bottome a kind of hony, as Hony-suckles (both the Woodbinds and the Trefoile) Lillies, and the like, and in them certainly the flower beareth part with the dew, and therefore places abounding in Manna, doe also yeeld plenty of hony; Thus *Cephalenea*. Moreover, the hony dew doth not only fall in the morning early, but in hot gloomy seasons, often in the after noon. L. Verul. Silva silv. cent. 7. 669. Sands relat. lib. 4

Thirdly, the Bees hony most abounds in flowers about noon, but the hony-dew as soon as the Sun waxeth hot, perisheth; I answer, it perisheth where it is open, and exposed to the Sun and Wind, but where it is well defended from either (as in the small sockets of flowers) it endures much longer.

And I affirme further, that Bees gather most hony in the fore-noon, except the hony-dew falls in the after-noon, and neither raine washeth it away, nor the Suns hot rayes exhale it.

Fourthly, the Bees hony while it is contained in the flowers,

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is liquid, but the hony-dew, namely Manna is compacted together, and congealed; Answer, Although the hony be liquid in the combes when it is newly gathered, yet thereupon it follows not that it was so liquid in the flower, being by a transcendent Chimical skill extracted forth of a more grosse substance, and after rarefied, and defecated in the limbeck of their bladder. moreover, as we shewed before, in many parts of *Asia*, the manna falls more liquid, but hardens after it is gathered.

Sands relat. l. 4

And againe, it is true in some parts of the World there falls, or rather is gathered this concrete, or coagulated hony (the right manna) Manna in *Calabria* is gathered from the leaves of the Mulberry-trees that grow higher in the mountaines, it falls like a dew in the night time, like a dew, and therefore liquid; it is gathered from the leaf of the Mulberry-trees, but not of such as grow in the Vallies, and it falleth upon the leaves by night.

L. Verul. Silva sil. cent. 8. 781

It should seeme that before these dews come upon Trees in the Vallies they dissipate, and cannot hold out; it should seeme also the Mulberry leaf it self hath some coagulating vertue, which conspissateth the dew, for it is not found upon other trees.

And it is more than probable that that Manna that is gathered coagulated, hath its condensation from the vertue of the tree, or plant from whence it is taken.

Pedro, Teixeira de los Reyes de Persia l. 4 c. 7

In *Persia* they call Manna *Xirqueſt*, *Xir* in *Persian* is Milk, and *Queſt* is the name of the Tree which produceth it, or rather whereof it is gathered; the best comes from *Hiez*, from whence it is carried in great quantity to *Ormuz*, and from thence throughout all the East; it is white, soft, sweet, and in Graines like Incense or Mastick.

Idem lib. 1. c. 22

They have another sort called Toraniabin, gathered on certaine plants like wild thistles; there is a Drug or kind of Manna brought from Utrad, not farre from the River Sind in the *East Indies*; the Naturals call it *Geukar*, of *Kar ſalt*, and *Geu fat*, for of the dew which falls and congeales in the sowen fields (mark, it falls liquid) it is gathered and called by us Salgeu, and more corruptly Salgema.

I must a little digress to reforme a Geographical errour, the River *Sind* which was mentioned before, is the principal of five, of which the River is compounded, first *Behat*, which ariseth

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neat *Kabul* towards the coast of *Persia*. The second is called *Chanab*, which comes from the Province *Quxemir* fifteen dayes journey distant from *Labor*. A third is called *Ruwy* springing near *Labor*. A fourth, *Via*; And a fifth *Sind*, which giveth name to the Land and Kingdome, commonly called by the Portugals *Sinde*. And therefore Mr. *Herbert* was deceived, who supposed the River *Indus* to bee called *Sind*. To return again. Mr. Herberts Travels into Africa and Asia, l. 1.

In the vallies of *Chile* in their season fall great dews (which collect and harden) like bread tempered with Sugar or Marchpane (Mark, they call liquid dews) which is as wholesome as that which they call Manna: By all which instances, it appears that Manna is first a liquid dew, and after inspissated by a vertue of the tree, or plant on which it falls, and falling on other plants or trees, it never condensates. Ant. de Herrera dec. 7. l. 1. c. 7

From the City of *Balsora* scituate in the end of the Red-sea on the banks of the Rivers *Tigris* and *Euphrates*, is brought a kinde of Manna in bottles like thick hony, so that some Manna, is never coagulated. P. Teixeira relation de los Reyes de Persia, l. 1. c. 7.

Fifthly, Hony-dew is contained in flowers, but the Hony-dew falls on leaves of trees. Answer, only on leaves of trees? Nothing less, on flowers also, and a great part, as I shewed before of the hony in flowers, is not natural but adventitious.

Sixthly, The Bees hony doth not onely last longer, but conserves other things, and that many years; but the Hony-dew, or Manna will not keep uncorrupted one year, nor yet preserve other things from putrefaction; and in the Northern Regions there is plenty of hony, but rarely any Hony-dews.

So *Magirus* Hony-dews are very rare in our Countries, in regard of our cloudy aire, but frequent in the Eastern Countries. Answer, That the lasting of hony longer than Manna may bee from a further concoction which it hath in the Bees bodies, as also from the continued great heat of the Bees after it is reposited in the combs, whereby it comes to further maturation and perfection *. And whereas hee saith, Hony-dews are rare in the Northern Regions, wee often by wofull experience finde the contrary, receiving by the frequency of them, great prejudice in our hops and corn. Jo. Magirus Phisiolog. l. 4. c. 6. *Vide Cap 32 of the Brasilian Bee called Zelloh.

Seventhly, If the Hony-dew bee the matter of hony, how comes

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comes it to pass that it falls onely on flowers, and not on the plants and leaves of trees? Answer, It falls not only on flowers, but on leaves of trees and plants also, though some plants and leaves, are not so tenacious, and retentive of it, as the great Maple, and the Oaken leaf, but being more porous and spungy, suck it up, and consume it.

Lastly, When the Hony-dew falls, the Bees gather it, and flock to it, but onely for their present repast and food. Answer, There is no rustick conversant among Bees, but knows the contrary, and by experience can say, that they then gather more hony in two or three dayes, than in two or three weeks after they cease.

Ribera, as you may remember, attributes smuttiness of Wheat to the Hony-dew; and *Helmont* seems to be of the same opinion, calling it *Triticum roratum sive mellitum*, and so do some others also. Now in a word to undeceive them. The cause of smutty Wheat, is not at all from the Hony-dew, nor yet from any of those causes, that the author of the first letter in Mr. *Haritibs* Legacy delivers. Nor yet is it a deficiency onely in the vegetative faculty, for it grows and produceth a blade, and an ear, but then it wants power to quicken and give life, as it were, by blowing to that corn that is put out in the ear; so that not being enlivened, it proves abortive, and turns into a stinking black powder (*Corruptio optimi pessima*) smelling like a red Herring, or Carrion.

Helmont. tumulus pestis.

Now this falls out for want of a nitrous, and thereby a nutritive quality in the grain, for it is most certain, that salt is the seat of life, and vegetation, and so the subject of nutrition.

This by the way, take notice of, that they are most under ears that are subject to that malady, not therefore subject to it, because they are lower than others, but therefore lower, because of a deficiency and weakness in the vegetative faculty. And usually if one stalk hath the ear smutty, all that arise from the same root are infected, yet it falls out (though rarely) that sometimes one side of the ear is good corn, and the other bags, for one side blows, and the other doth not, and whatsoever blows not, will be smutty.

Many years together I suffered much damage by it, but knew not how to remedy my self, but after the projection of divers

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divers experiments, at last successfully, I fell upon this course, I caused a Hogs-head of salt water to be fetched, and put into the water near a bushel of Bay-salt not at once, nor yet into the Hogs-head, but pouring half of it at a time into a Tub, I after put in half the salt, wherein when it was melted, I imbibed my Seed-wheat thus: Filling a close well-wrought Ozier-basket (that would admit the water, and hold near a bushel) with Wheat, and then put it into the Tub, holding it by the ears, and when it was all well moistened, took it out, letting the water drain as it stood on the Tubs side, into the Tub again. And when it began to leave dropping, poured it on a floor, and strewed upon it as it was turned over, near a shovel full of slaked lime, not that lime addes any thing to the vegetation (perhaps it accelerates the growth) nor yet secures it from vermine (as some conceive) but onely dryes it (being done over-night) that it is more nimble and better to sow the next day. Lime without steeping your corn, doth not prevent smuttiness, but corn thus imbibed, and then sown without lime, will not smut.

Thus adventitious Salt supplies the defect of that nitrous quality which some grain are defective of, and are hereby quickned, refreshed, and as it were impowred to perfect vegetation to maturation.

Such as are remote from the sea, must make a brine which will bee every way equivalent, onely more chargeable, I have many years made trial of this course, and without any great curiosity, for my seed have had constantly bright wheat, and so also my neighbours, to whom I readily divulged what I found good for the publike; but in my publick Discourse, I forget too much my private Design.

CHAP. XXII.

Of Hony.

Cardan affirms, That neither Hony nor Waxe is made by any creature but a Bee, which is a truth, if wee take it *Cardan lib. 9. de subtil.* con-

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conjunctively, otherwise not. There is no other creature that makes both hony and waxe.

Scaliger de subtil. exercit. 191.

And that which *Scaliger* saith, *Pliny* observes out of *Aristotle* (which I remember not) that Waspes make wax, is false whosoever affirms it. Combs they make, as some other Insects, but they are not wax, but drossie collections of old pales, and other old wood, tempered with a gummy liquor flowing from the Oak, or (felled) Elmes whereby they become tough and capable to contain their young. Try to melt them, and you shall quickly resolve your self.

And whereas *Scaliger* saith, There is in the *Molueca* Islands hony made by Flies less than Ants (the truth is questionable, for it is onely reported by *Pigafetta*) I suppose hee called them Flies, onely for their smalness. The earth-Bee, with us a kinde of wilde Bee, is smaller, and yet gathers Bee-bread abundantly, and hony also for ought I know.

And most of the *American* Bees are not bigger than Flies, but yet are Bees, not Flies.

And for his instances of the solidity of some hony (admitting of the Histories) they do not at all enervate this position that Bees onely make honey.

Among the *Troglodites* in a Country called *Balgada*, there is hony found whiter than snow, and as hard as a stone; And in the Country about *Calicut* the hony is so hard that they carry it in baskets, what then, was it not made by Bees? I have seen as white, and as hard made by my own Bees. Indeed besides the domestick Bee, the humble Bee makes hony, but little in quantity, and nothing so pleasant in taste for quality.

Math. Ricii de Christiana expedit apud Sinas lib. 1.

In *China* there is not onely plenty of Bees wax, but there is another sort which is not onely whiter, but also better, for it is less glutinous, and being lighted, burns brighter: It is made of certain worms which they breed up in trees for this purpose. They make a third sort of a fruit of a certain tree which is not less white than the former, but burnes nothing so brightly.

Thus have wee found hony and wax too, made by other creatures besides the Hony-Bees, but both by no one creature.

Libanius saith, Hony and Wax may be gathered without the Bees

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Bees labour, there is in the flowers, saith he, and leaves of plants, both hony and wax, which by sublimation may be easily segregated, but as a fruitless and needless speculation, I wil not insist upon it. Andreas Libanius, lib. 2. Alchym. tract. 1. c. 45

Gorrheus saith, hony is a sweet juyce, hot and dry, it seemes to have its original from the Hebrew עגב which is delight, and thence the *Germane* Honig, which wee contracting call hony. Mat. Martinii lex Philolog.

By hony Metaphorically is understood every pleasant, dainty, and savoury mear. Dictionar. Etymolog. trilingue, I. Fungeris, Cæl. Rhod. lect. antiq. l. 6. c. 2

Hony is the Symbol of Death, as Gall is of Life, wherefore the Ancients offered hony in Sacrifice to the infernal Deities, for because of pleasure, death creeps on us.

Hony signifieth Marriage, saith one, and is taken Figuratively for carnal pleasure, and signifies a worldly life, not abhorring delight, for marriage is honourable; nor is a Christian to be blamed that lawfully useth it. But as in the old Law, although hony might be received for gifts, and first fruits, yet it was forbidden in Sacrifice: so in the Church (only the *Roman* Church) the hony of Marriage is honourable in Lay-men, yet are married persons prohibited the Altar, for it is not lawful for a Priest to be married. Barradas itinerarium filiorum Israel ex Ægypto lib. 6. c. 5

There are many sorts or kinds of hony; Aerial, Manna, Reed-hony, Sugar, and that which is gathered by Bees; the best hony is that which is so pure that it glisters yellow (*Aristotle* commends the white) having a good smell, not too hard, nor too thin, sweet to the taste, and hanging together, once being boyled yeelds little scum.

Another saith, that is the best hony which is in a mean between thick and thin, sweet in taste, and yet sharp, pricking the tongue; for colour either pale, or pellucid, and shining like Gold, odoriferous and new, and which taken up, hangs so together that it wil not be easily separated; in a word, the best is at the bottome. Scolia Guil. Plantii in Fernel. method. medendi. lib. 7

A measure that containes fifteen ounces of hony, wil hold but ten ounces of wine, and nine of oyle. Fernel. method. medendi, l. 4. c. 6

Diophanes prescribes to know adulterate hony thus; if it will not burne purely, but rather thus; melt a little in a porringer, and Wecker. de secret. lib.

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and if it be adulterated with flower, or any thing else, you shall perceive it by the scum; if it be pure, it will be as clear as rock water.

Porcacchi descrit del isole di Sicilia.

New hony is better than old, the *Sicilian* was with the Ancients in highest estimation, so that by a Proverb, the *Hyblean* was notorious, *Barbinus* commends the Attick before all other.

L. Verul. fil. fil. cent. 7. Arist. de. hist. lib. 5. c. 22.

Some imagine that the chief labour, or rather skill of the Bee is about the Wax, and that the Bee (according to *Aristotle*) gathereth hony only from the hony dew; but this wee made clear before, that she maketh, that is, extracteth more from the flowers, than she gathereth from the trees.

Cardane fondly supposeth, that they neither make, nor gather properly, but convert what they gather into hony, by vertue of a little bagge or bladder sweet as hony; and like saith he, is made of like.

Various are the opinions of the Ancients concerning those that first found out hony, with the nature of Bees; some say by *Euhemerus* in the Island *Ceus*; others, by *Euthronius*, in the dayes of *Erichtonius* on Mount *Hymette*, a Country of *Attica*, *Nicander* saith in *Creet*, in the time of *Saturne*.

August Ser. 15 ad frat. in eremo.

Aristodemus the Philosopher studied many years to find out the nature of Bees, and could not; *Aristomachus* saith *Cicero* did nothing else for sixty two years; and *Pliny* saith of him, that he first taught and found out the encreasing of Bees, and was so earnestly affected to them, that he studied day and night how hee might best order, and intreat them according to their kind.

Diod. Siculus lib. 6 Macrob. Saturnal. l. 1. Justin. lib. 13

Others ascribe this invention to one *Thessus*, who deserved great commendation for his skill among Bees, *Diodorus* saith, the *Curetes*, a people of *Creta* first found out hony, *Macrobius* ascribes, *Diodorus*, and *Pliny*, and *Columella*, to *Aristeus* in *Thessalie*, to whom *Justine* agrees, although in his forty fourth Book he ascribes it to *Gargoris*, but only I conceive for *Spaine*; fabulous *Berosus* cites him by the name of *Melicola*, *Palidore* to the *Jews*; I hold it ancienter, for *Jacob* sent a present of hony to the Governour of *Ægypt*.

Polydor. Virgil de invent. rerum. lib. 3. c. 3

Godignus de Abissinorum.

In no part of the world is more hony than in *Æthiopia*, the cause whereof is the plenty of Flowers which grow there (let such

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such take notice of it that deny Bees gather hony of Flowers, and the many Rivers, Lakes, and Waters. rebus, lib. 1. c. 10

Ilensagagben a Town of *Hea* in *Africa* abounds greatly with hony, which serveth the inhabitants both for food (consisting of two hundred Families, having neither Gardens nor Fruit-trees, but only Barley and Oyl, the inhabitants being sloathful) and for Merchandise to sell in the neighbour Countries, they cast away their wax. I. Leo. lib. 2

The Mountaines in *Africa* are most plentiful of hony, whose tops are always covered with Snow, as *Nisisa*, *Sensana*, *Tagodest*; *Thagia*, *Beni-fenescare*, but white hony is there a rarity; yet in the Kingdome of *Morocho* they have very much hony, some for whiteness like to Milk, other clear and yellow like gold. I. Leo. lib. 2, & lib. 5, Cælii Augustini Curionis, Marochensis regni descript. Marysonitin. part 3 lib. 2. c. 4.

Poland abounds with hony, which they finde in hollow trees, and Caves of the earth, besides the Husband-mens Hives. Col. Rhod.

In *Mycone* there are no Bees, and if they be brought thither they dye.

Mycono is one of the *Cyclad* Islands. Ortelii Thesaur.

In *Ireland* are many Bees, as well in Hives at home, as in hollow Trees abroad, and Caves of the earth, contrary to *Solinus* and *Isidore*, and it is as good as in other Countries, and more store would be there, but that there grow some Trees that are venemous, but what those Trees be he names not. I. de la Haye thresor des chartes.

Aldrovand saith, there be no Bees in *New Spaine*, and *Isidore* relates the same of *Scotland*, and saith, that stones and dust brought thence and laid in the Hives, makes the Bees forsake them, but false, as *Polidore* acknowledgeth. Polyd. Virg. lib. 13. hist. angl.

Malta is hotter by much, than any other Country which is seated in the same parallel without Rivers, but hath sundry fountaines, and hony in abundance. Sand. relat. lib. 4

And the plenty and goodness of the flowers in *Malta* is the cause that it affords excellent hony, therefore saith a learned Phisician, that Hony is *Flos florum*, the flower or quintessence of flowers, nourishing not a little with his sweetness, and preserving things from putrefaction. Porcacchi descrit. del Isoldi Malta. Marcilius Ficinus, lib. 2. de diet. c. 18

Sicilia likewise though hot, yet is stored with Rivers and Fountaines; the Winter most temperate, no day so tempestuous, as affordeth not some Sun-shine, and about *Enna* the flowers

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flowers are so numerous, and fragrant that the Dogs cannot hunt.

In *Podolia*, and indeed all *Sarmatia* (understand *Sarmatia in Europe*, for there is *Sarmatia* in *Asia*) now it contains *Polonia*, *Russia*, *Prussia*, *Lituania*, *Livonia*, *Podolia*, and *Moschovia*: whereto is added *Alba*, *Russia*, and *Vandalia*.

Hier. Girava de Cosmograph.

In a word the people were anciently known by the name of *Scythians*. Here is more hony then in all the world besides, for they fill sometimes great dry pits with combs, that the Bears coming to eat the hony, accidentally falling into them, have been suffocated with the abundance.

Dictionar. Etymol. tri lingue fungeri.

Cleo Mag. hist. delle cose Septen. l. 22.

Nature denies them the vine, but the God of nature hath more than sufficiently recompenced that defect with an incredible quantity of hony, which they use (besides to several other purposes) to make mead with.

Gio. Botorole relationi univers. sali a part l. 1.

There is great abundance in *China*, for they wonderfully delight in keeping of Bees, there is also very much wax, you may lade Ships, nay Fleets therewith.

Mendosa, Treatise of the Kingdom of China.

Hony is more plentiful in *Russia* than in any part of the world, thereof they spend great quantity in their ordinary drink (which is Meade of all sorts) and many other uses, and yet good quantity is carried out of the Country, which may better appear if wee take notice that there hath been shipped fifty thousand Pood yearly of wax, every Pood containing forty pound, which amounts to a thousand Tun, and yet the great men use but little Tallow, but much wax for their lights.

G. Fletcher Russe Commonwealth.

Lettere d' Ab. Campense inte nole cose di Mos. & P. Jovio delle cose del. Mos. apud Rhamusi. 2. Volum.

Muffet perstringeth *Jovius* for applauding the *Russian* hony, for saith hee, There is not a Bee in the whole Country, and hee justifies himself from the relation of *Sebastian Baro*, how truly from the premises you may easily determine.

About the River *Occa*, distant about thirty Leagues from *Mosco*, is the greatest store in all the land of *Russia*.

Purchas pilg. 3. part. l. 2. c. 1. Incouragement of setling a Plantat. at Madagas. J. Leo l. 8.

There is a report that a greater quantity than that mentioned before is brought yearly to *India*, from the Coast of *Malindia* near adjoyning to *Madagoscar*, namely fifteen hundred Tuns.

There is little hony throughout all *Egypt*, and that little is not very good, for it is alwayes moist and thin like water, the reason whereof is said to bee, because the flowers are over moist

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moist by the overflowing of *Nilus*, but in *America*, where the lands are not overflown, but exceeding dry, yet the hony is alwayes liquid, so that it comes from some other cause. Alex. Aphrod. Prob. 74.

Corsica yeelds many venemous trees, from which if the Bees suck any thing, they make the hony very bitter; It seems these trees were but in some places, for *Athenæus* reports, that the *Corsicans* were long lived with the daily use of hony, which is very plentiful with them; some parts were infamous for their bad hony, occasioned through their plenty of Yew trees, which *Servius* confirms, saying, The *Corsican* hony is bitter, and *Martial* mentions it. Estates of the world translat. by Ed. Grimst. Servius com. in 4. l. Georg.

Some vainly conceit, all hony at first to bee sharp and bitter; but in process of time being concocted, it returns to its proper sweetness. Martial 9. Epi. Nicetas com. in Greg. Naz. t. 2. orat. 43.

In the City of *Trapezunt* in *Pontus*, the hony gathered of the Yew trees smells filthily, and makes them that are well in their wits, mad, and but cures those that are distracted. Arist. de Mirabil. Auscult.

In some parts of *Spain* the hony is poyson: Also at *Heraclea* in *Pontus* some years, they have an herb called *Aegolethron*, hurtful to Goats; the flowers whereof, especially in a wet Spring have a poysonous quality. Signs of it, it never thickens, the colour is more red than other hony, a strong kinde of smell, presently it causeth sneezing, they which eat of it throw themselves on the ground seeking to cool themselves, for they are all on a sweat. And if dogs eat their excrements that are affected with it, they have the disease.

Likewise in *Pontus* among the *Sauni*, there is a hony which causeth madness, which is supposed to bee gathered from the *Rhododendron*, whereof the Woods are full. In some parts also of *Persia*, and in *Getulia*, a Province of *Mauritania*. Plin. Nat. hist. l. 21. c. 13

Galen saith, his father had hony so bitter with age, as if it had been gathered in *Pontus*. And therefore *Servius* on those words of *Virgil*, *Dulcia mella premes*, saith, It is not a superfluous Epithite, because there is bitter hony. So is there sharp hony also which comes by age. Gallen. l. 1. de Antidot. c. 2. Idem l. 3. de compos. medic. secund. Gen.

The hony is bitter near *Phasis*, and about *Hereclea* a City of *Pontus*, from the plenty of Monks-hood, or Wolfes-bane, saith *Dioscorides*. Strabo l. 11. Dioscorid. l. 6. c. 8.

Pet. Belonius saith, These Countries of *Pontus* abound with

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an herb called *Black-cameleon*, the root whereof hath an excrescency called *Ixia*, which is a deadly poyson, and kills presently those that drink it. Now, saith he, if the Bees gather the substance of the hony from the Chameleon-flower, there is no doubt but the hony is very dangerous, but saith hee, wee are not ignorant, that the Bees gather not the matter of their hony from the flowers, but onely of the leaves when they are covered with the Hony-dew. But this great observer, for want of observation failed, trusting too much to *Aristotle*, and others, that the Bees did not make, but onely gather hony.

The *Sanni* of whom wee spake before, paid a tribute of Waxe to the *Romans*, but the hony, as dangerous, was not vendible.

Strabo l.11. *Strabo* writes, that the people called *Heptacometes* beyond *Colchos*, slew three cohorts of *Pompies* souldiers when they passed through the mountain Country, for they mingled a kinde of poysonous hony with their drink, and easily massacred them when they were besides themselves.

Diod. Siculus, l.14. *Diodorus* reports, That the *Grecians* returning from *Babylon* in the Country of *Colchos*, found abundance of Bees, and did liberally feed of the hony, but as soon as they had eaten it, they became mad, and presently threw themselves on the ground, and lay like dead men; but the day after, the same hour they were taken, they recovered their wits again.

Dioscor. l.2. c.75. In *Sardinia* is no venemous creature, yet the hony is poyson. *Dioscorides* saith, It is very bitter, and that they gather it of wormwood, and that it is excellent to cure blemishes and spots of the face. *Galen* mentions it, saying, If any hony bee bitter as the *Sardinian*, it is of a mixt faculty, as if some of our hony were tempered with wormwood. *Virgil* saith, It is gathered of the Yew tree, *Sic sua Cyrneas fugiunt, examine taxus.* *Diodorus* from the Box tree.

Galen. lib. 7 de simp. facul. Med.

Diod. Sicul. l.5.

Plin. Nat. hist. l.21. c.14. In *Caudia* there is a mountain called *Carnia*, nine miles in compass, in which space, no Flies are ever seen, and they never touch hony that is made there, and brought from thence.

In *Thracia* the hony is not only solid, but sandy, such as is gathered in the Heath-country of *Hampshire*, very course, and red, full of little dots or specs, like sand, but much greater:

Pliny

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Pliny dislikes it on good grounds, as the worst hony.

All hony hardened, keeps the same solidity, diverse from water and other liquids, for all other liquid things once compacted, dry, and are attenuated, but hony doth not.

That hony works as wine in the comb untill the twentieth day (asserted by some) is a fable, and that the cover that stops it up is the feces from the working, which they that maintain the former deliver, is as ridiculous; make trial, and you shall finde it wax as the combes.

Some combes in plentiful years, are shut up the first day.

Hony in the comb is all pure, but after it is expressed, some feculent and dreggy matter, partly from the combes, partly from the Bee-bread and spat, somewhat corrupts the purity, all which it purgeth up to the top, contrary to all other liquids where the sediment is at the bottome.

The use of hony was prohibited in the old Law, because it is a symbole of pleasure and delights, in regard of the sweetnes thereof. Now pleasures are displeasing to God, no lovers of them can offer a gratefull sacrifice unto him. Therefore the Philosopher said, Because of pleasure, wee doe wicked things. Fr. Valesius de sacro Philoso. c. 16. Arist. Ethic. l. 2. c. 3

Another saith, By prohibiting hony in the Law, wee are to understand Philosophical ostentation, and pleasant allurements of humane eloquence, very sweet in sound, but not in substance. Cælius Rhod. lect. Antiq. l. 28. c. 27.

Another, Hony was not offered in sacrifice, nor yet wax wherein hony is deposited, but oyl for the Lamps in Gods Temple, which was expressed from the bitternes of the Olive, for vices are sweet, and therefore the Harlots lips drop as an Hony-comb. Hieron. Epist. 2. ad Gaudent. t. 1. & Epist. 19. ad Eustochium.

Aquinas saith, Hony was not offered in sacrifice, because it was ordinarily offered in sacrifice to Idols, and also to prohibit, and avoid all carnal sweetnes and pleasure from those, who intended to offer sacrifices to God. Tho. Aquin. t. 1. 12. q. 102. 3. 14. m.

The heathens used hony in their sacrifices, especially the *Athenians*, and that to several of their Deities, and yet *Plutarch* propounds a question why they did not use it. But it is certain they offered no wine to their gods, but water sweetned with hony. Stuckius Sacr. sacrific. descrip. Plut. quest 5. Sympo. Hier. Romano. l. 2. c. 3.

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Goodwin Ant q. l. 1. c. 2. & Alex. ab Alex. genial dier. l. 5. c. 26

The *Romans* had divers names for their Religious places, one was called *Scrobiculus*, which was a furrow, or pit, containing an Akar in it, into which they powred the blood of the slain beast, together with hony, and other things when they sacrificed to an infernal Deity.

Hier. Romano l. 2. c. 8

The *Romans* sacrificed to *Pluto* three times in the year, the beasts for sacrifice were black, old, and barren, and they made ready in this sacrifice a drink of wine and milk, mixed with hony and blood.

Guil. Moses unvailed

One gives this as a natural reason, because being burnt, it had no good smell.

Idem. l. 2. c. 9

In the Feast of *Bacchus*, all the Priests being crowned with garlands of Ivy, offered sacrifices made of fine flower, and hony fried with oyl, and sometimes with hony, because *Bacchus*, as they supposed first found them out. *Horace* saith, They sacrificed hony taken out of the Combs to him.

Horat. 2. carm.

Bacchus by some was called *Bryseus*, from an old word, *Βρυω* to flow, because he first taught the use of hony: And *Ovid* saith, That hee was not onely the inventor of hony, but that hony was offered in sacrifice to him.

Ovid. l. 3. Fast.

Plutarch de Nider. & Osir.

The *Egyptians* when they celebrated the feast of *Mercury*, did eat hony and figs.

Hier. Romano l. 2. c. 11

Among many other things which the *Romans* offered in sacrifice to *Ceres*, they used to present hony and wine. And because *Ceres* sought her daughter *Proserpina* ravished by *Pluto* with torches, or candles, which shee lighted in the *Vulcanean* mount *Etna*, therefore a day of burning lamps and candles, was dedicated to her by the heathen, and from hence came the feast of Candlemass among the Christians.

Goodwin An. l. 2. c. 13. Alex. ab Alex. genial dier. l. 6. c. 8.

In the sacrifices to *Bona dea*, or the earth, they used wine, but called it not by the name of Wine, but Milk or Hony, and the vessel wherein it was put, the Hony-vessel.

Eurip.

The ancient *Greeks* quieted or appeased their dead with hony, *Iphigenia* in *Euripedes* vowing sacrifices to her brother, promiseth to sprinkle the blood of a Mountain-calf, the liquor of *Bacchus*, and the labours of yellow Bees.

Chaucer in the Knight tale.

Chaucer relating the burning of Arsite, tells what they used to cast into the Funeral flames.

With

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With vessels in her hand of gold full fine,
All full of Hony, Milk, Blood, and Wine.

They gave the deceased a Wafer tempered with hony to appease *Cerberus* withall. Adr. Turnebi l. 28. c. 45.

In *Peloponesus* they began their sacrifices to the goddess *Melissa* which was adored among them, because shee taught them the use of hony. Hier. Romano lib. 2. cap. 1.

This *Goropius* denies, for hee saith, *Noah* first after the deluge sacrificed to God, and God smelled a sweet savour. This was the first banquet after the flood, where with *Noah* feasted *Jupiter*, for which, because it was sweet, hee was called *Melissus*, namely for offering hony to *Jupiter*, and because this Hony-service or sacrifice came from him willingly, hee was said to have a daughter at home called *Melissa*, namely the hony goodness of his minde, whereby hee made a feast to God. Gorop. Becan. Hieroglph. l. 13.

And then because with this sweetness, or *Melissa*, hee presently obtained that favour from God, by which hee was abundantly supplied with all necessaries; for this, hee was said to have another daughter, which was called *Amalthea*. So that having *Melissa* good will, and *Amalthea* a large plenty of all things; and by these his two daughters daily to feast *Jupiter*, posterity fained that *Jupiter* being an Infant was nourished by the daughters of *Melissus*.

In ancient times, Junkets prepared with hony, were proper to marriage solemnities, of which cates, or honied cakes, the Bridegroome first tasted, and then the Bride, and after the Guests. Pineda de rebus Solom. l. 5. c. 12.

Curtius speaks of it in *Alexanders* marriage with *Roxane*. And *Pineda* saith the same of *Solomons* marriage with *Pharaohs* daughter to bee obscurely implied, *I have eaten my hony-combe with my hony, I have drunk my wine with my milke: Eat O friends, drinke, yea, drinke abundantly, O beloved.* Which is an invitation of the Spouse to the tasting of it: Where the Septuagint Reads, *I have eaten my bread with my hony.* Moreover it signifies any extraordinary sweetness, as also milk, or any more pleasant dainty. And truly hony and wine seem to bee proper to Nuptial feasts; which is more clear, *Ezek.* 16. 13. Q. Curtius l. 8. Cant. 5. 1.

as all the rest that went before concerned marriage; this was a wedding Ceremony to eat bread made of fine Flowre, Hony, and Oyl, by the communion whereof the Bride was taken into the Partnership of the Kings bed and Kingdome.

Jo. Lloyd. Index after the Espousals and Marriage ceremonies performed, diverse Guests are invited to a Banquet, where for great dainties is first brought a kinde of bread fried and tempered with hony.

J. Miletius Religio, Borussorum. Among many other Nuptial ceremonies which the *Borussians* use, after they have washed the Brides feet, and with that water sprinkled the Marriage-bed, and all the utensils of the house, and the Guests also, then they anoint her mouth with hony, and covering her eyes with a vail, lead her to all the doors of the house, which they bid her strike with the right foot.

Religio Russorum ad Dom. Chytreum. The *Russians* use many strange Marriage-solemnities. The Priest having a book open before him, sings with a loud voyce one of *David's* Psalmes. And then taking hold with his hand on one of the Bridegrooms curled locks, speaks to him after this sort. Tell me, O Bridegroom, brother, friend, Wilt thou be this young womans husband, Wilt thou sometimes beat and cudgel her, &c.

Then the Bridegroom solemnly protests to do the office of a good man. And then turning his speech to the Bride, he asketh her, if shee be sufficient for a husband (for their Maids often and eleven years old marry) Will shee have a care of the household affairs, &c. which shee affirms. Then the Priest puts on either of their heads a Garland made of Boughs, in the circumference whereof is written in *Russe* letters, *Increase and multiply*. While he doth this, many wax candles are lighted, and a bowl full of Mead is then given to the Priest which he drinks all off to the new coupled at one draught, and they cheerfully pledge him and then return him the cup again.

G. Fletcher Russe Commonwealth c. 22. After many preceding ceremonies, the Bridegroom taking the Bride by the hand they go on together with their friends after them towards the Church-porch, where her is met by some with pots and cups in their hands full of Mead (the *Russe* propes wise) whereof the Bridegroom takes first a Cork or little cup full in his hand and drinketh to the Bride, who opening her hood or vail below, putteth the cup to her mouth under-

neath it (for being seen of the Bridegroom) pledgeth him again.

The *Romans* in the Nuptial supper, gave the new married couple the juyce of Poppy tempered with milk and hony. Ovid. l. 4. Fastorum.

The Ancients did use hony in all their Sweet meats, as wee do Sugar, indeed they knew not what Sugar was. Ad. Tunnes. advers. l. 28. c. 45.

The *Romans* used hony in their first service at their feasts; as also in their second. And indeed formerly no kindes of meat, but were with the use of hony made more acceptable. Fulvius Ursinus.

Pithagoras usually fed on hony, and Hony-combes, because they were prepared without mans labour, and were a kinde of heavenly food. Lilii Greg. Syrald. Symb. t. 2.

To this day the *Jews* give Infants a taste of butter and hony before they suck. Calvin in Esaiam c. 9.

Amongthe *Illirians* was first of all the use of Mead; which in *Aristotles* time the *Greeks* were scarce acquainted with. Aristot. de Mirabilibus auscultat.

CHAP. XXIII.

Of Tree-hony.

THere was anciently, and is still Tree-hony, as well as Bee-hony. And this Tree-hony is of two sorts, either a plentifull hony-dew, which might bee gathered; or else sweet saps or juices drawn out, or concocted from several sorts of trees and fruits, to the consistence, taste, and likeness of hony.

Of the first sort it is reported that near the *Caspian* sea, there are plenty of trees with leaves like Oaks, yeelding much hony, but it must bee gathered before the rising of the Sun, for the rayes thereof quickly consume, and waste it. Mr. Anton. Coccii Sabellici Enn. 4. l. 1.

In *Arabia Nabathea*, they gather hony plentifully of the Trees, which they call Wild hony, of which mixt with water, they use to drink. Diodo. Sic. Biblioth. l. 19.

There is a Tree called *Occhus* in the vallies of *Hircania* that distilleth hony in the mornings. L. Verul. cent. 7. c. 6 n.

In *Lidia* there is plenty of hony gathered of the Trees of which the inhabitants make loaves, or lumps of such hard- Arist. de Mirabil. auscul.

pers, that without many blows, they cannot bee broken.

Mouffet Theatrum Insect. l. 1. c. 5.

The inhabitants of Mount *Libanus* spread hides under the trees, and then shake and beat them; and after gather up the hony, which they reserve in earthen pots.

J. Acosta natural and moral hist. of the Indies l. 4. c. 23.

The *Magueis* is a Tree of wonders, it yeelds Hony, Water, Wine, Oyl, Vinegar, Syrrup, Thred, Needles, and a thousand other things. It is a tree which the Indians esteem much in new *Spain*, and have commonly in their dwellings some one of them for the maintenance of life: It grows in the fields, and hath great and large leaves, at the ends whereof is a strong and sharp point which serves to fasten little pins, or to sow as a needle. And they draw out of this leaf as it were a kinde of thred which they use. This liquor being sodden, turns like Wine, which grows to Vinegar, suffering it to sowre, and boyling it more, it becomes as hony, and boyling it half, it serves as Syrrup.

Hackluits Voyages first part. Iob. Horr.

Hen. Hawks ibid.

Below by the root of the *Magueis* Tree, the *Indians* make a hole, whereat they take out twice a day a certain kinde of liquor which they seethe in a great kettle, untill the third part bee consumed, and then it waxeth thick, it is as sweet as any hony. It is not so sweet as the hony (saith another) of Bees, but it is better to be eaten with bread.

Fernand. Cortesela, 2. relation apud Ramus. 3. volum. Herrera decad. 8. l. 5. c. 1.

In and about the City of *Themistitan*, besides the hony of Bees, is hony of the Canes of *Maiz*, which Canes yeeld very much hony, and as sweet as the juyce of the Sugar-cane.

In *Santta Cruse*, and the Country about it, which is in the Province of *Tucuman* grow sweet Canes, of which they make very good hony.

Geor. Cedrenus hist. compend. Beda de sanct. locis c. 14.

The fruit of the Palm-trees growing about *Jericho*, being trodden and pressed out, yeeld great quantity of hony.

There grow trees in *Palestina* with broad and round leaves of a milky-colour, and a hony taste, very brittle by nature, which they eat, rubbing them in their hands. This a certain Bishop, called *Archulphus*, who had visited the Holy-land, supposeth to be the wild-hony that *John Baptist* lived of in the wilderness.

Baron. Annal. Eccles. t. 10.

Isidor. Pelusiot. l. 2. ep. 132.

But others say, It was a mountain-hony made by wilde Bees, bitter, and unpleasant to the pallat. *Theophilact* wilde hony was made by wilde Bees in trees and rocks.

Theophil. in Evang. Matt. c. 3.

They get the Palm-wine after this sort in *Congo*, they bore a hole

hole near the top of the tree, whence flows a liquor which they receive into pots fastened underneath, at first it is in taste and colour like milk, it quickly soureth. Iarric. Thesaur. indicus.

In *Cranganor* they make hony of it after this manner, within three dayes (for after of its own nature, it proves vinegar) they boyl it in Caldrons, or Kettles untill two parts bee wasted, and then it is very sweet hony. Of this hony mixed with water, and purged twenty dayes together, they make an excellent sweet wine. I might speak of the *Indian* Palm, or Coco-tree, which likewise yeelds hony, but I will adde no more. Novus orbis Iosephus Indicus.

CHAP. XXIV.

Of Wax.

WAx is either natural or artificial, the natural Wax is the grosse part of the combs, containing the hony and Bee-bread, sometimes the Seminaries for generation. And this is either Virgin-wax, or of a courser sort: the Virgin-wax is that which is made by a swarm, or a stock new driven, not that only which is made by the younger Bees, as *Hellerius*, for they work altogether. Hellerius l. c. Institut Chyrurg. c. 1.

This is called by some *Propolis*, as *Aldrovand.* observes out of *Aëtius*. And *Scribonius Largus*, It might bee expected, that I should speak somewhat of *Propolis*, *Commosis*, *Mity*, and *Piffocera*, used anciently in Physick, and supposed to bee made by the Bees. But I can finde no agreement among Philosophers, nor yet Physitians what they are, and am certain that they are not what *Aristotle*, *Plinie*, and others determine them to be, and therefore I will leave the discussion to others. Only in a word, *Mity* saith *Aristotle*, is the black drosse of wax of a sharp smell, I suppose he means the feces of the wax when it is melted and strained; *Propolis* seems, saith *Scaliger* a translative surname of *Mity*. Aduar. de compos. med. Arist. de hist. anim l. 9. c. 40. Scalig. com. in loc.

Caius translates it *Commosis*, but *Plinie*, make a difference between *Commosis*, and *Propolis*, wherefore *Scaliger* was of opinion, that *Commosis* and *Mity* were different things. Plin. lib. 11. c. 7.

Scribonius takes Virgin-wax (as before) for *Propolis*; *Silvaticus*

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you take it for the dregs of the combes, but amiss, saith *Mouffet*, and yet he would have it to be Hive drosse, but whether of a Swarme or a Stock he declares not; between which is a great difference; *Andreas Bellunensis*, the filth or drosse of the sides of the Hive; I subscribe to *Sylvaticus*; Propolis is as much as subarbe drosse, with which the Bees fasten the skirts of the Hive to the board; it is not saith *Mouffet* now to be found.

Waxe is thus made by the Bees; they creeping upon the Flowers with their fangs and tongue, as *Aristotle* and others say, extract a gummy and viscuous matter, which they receive with their fore-feet, and rubbing them on the thighes of their hind-feet, there fasten it, very little at a time, and scarcely visible.

Mouffet saith, the burden is of the bignesse of a lentil on either thigh, and that it is of divers colours, according to the nature of the Flowers, yellow, pale, red, Saffron colour, white, black, &c. but hee and many others were mistaken, taking Bee-bread for Waxe.

Dioscor. l. 2. c. 7. Plin. lib. 11. c. 14. The best Waxe is somewhat yellow, fat, pure, odoriferous, and expressing in some sort a scent of honie; *Dioscorides* commends the Pontick or Cretan, *Pliny* commends the Punick, and it is called Punick, saith *Iacobus Dalechampius*, because it is the whitest.

Johannes Anglicus in rosa anglica, lib. 5. c. 1. Artificial Waxe is that whereto the perfection of it the skill and industry of man is required, and this is variously performed; two waies are set down by *Anglicus*, First, that the Waxe should be often melted, every time taking new water and it be white. Another way is thus, that when it is dissolved in the water by the fire, to dip into it a Glass vial, or vessel clean rinsed, and that which sticks to it let it be dried in the Sun, and Moon; and this so long continued until you have gathered up all the Waxe, and then set it abroad in the open air, for it grows white by the force of the Sun (that I say nothing of water) because for the hony is taken out of it, and those parts expire by whose thinnesse the colour is made.

Waxe as it is newer, so it is better, for it is more odoriferous, purer, and apt to take impression, Waxe is worst at the bottom, best at the top, so that it be not frothy.

Mr. Remnant. The Bees gather Waxe all the year, from the blowing of the Willow to the Ivie.

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In old Waxe saith *Aristotle*, there is bred small white Creatures, the least of creatures, called Acari, in regard of the smallnes, not devisible, I suppose he means Mites, which are bred also in many other things.

The Kingdome of *Chandecan*, watered with the river *Ganges*, is plentifully stored with Waxe, which in abundance the people finde in the Woods, and therewith supply *Bengala*, and a great part of *India*. Francis. Fernandus

The *Livonians* knew not the use of Waxe, and therefore pressing out the hony threw it away; *Cadamustus* reports the like ignorance of the *Africans* in *Mauritania*. Aloysius Cadamustus.

From the Coast of *Melindie*, neer adioyning to *Madagascar*, there is brought one thousand five hundred Tun of Waxe yearly to *India*.

Teculeth a Town of *Hea* sendeth Waxe into *Portingale*; and to *Temsethne* resort ships from *Portingale* for Waxe. Io. Leo, lib. 2.

In *Fez*, on *Mahomets* Birth-day the Schollers of every School, which are two hundred, celebrate a Feast, when the Fathers are bound to send each man a Torch unto the School, whereupon every Boy carrieth a Torch in his hand, some of which weigh thirty pound; these Torches are most curiously made, being adorned round about with divers fruites, of Waxe, which being lighted betimes in the morning doe burne till Sun rising, when the solemnity ceaseth. This day useth to be very gainful unto the School-masters, for they sell the remnant of the Waxe upon the Torches for above a hundred Duckets. Idem, lib. 3.

The *Persians* in old time, and also the *Africans* had a custome to wrap up in Waxe their dead, that so they might preserve them for a long time. Funerali antichi da Tho. Porcacchi, tab. 22.

The *Romans* in the Burial of a Senator or chief Officer, had certaine waxen Images of all his Predecessors carried before him on long Speares. Goodwin, Rom. antiquit. lib. 2. c. 7.

Waxe was much used anciently, to make the Images of eminent persons deceased, as also in our daies, which by many circumstances, as appears, were borrowed of the *Romans*: who when the deceased Emperour was to be consecrated, the whole City gave over all exercises, as if it had been a Festival day; First, they burned the dead Body with sumptuous exequies, and then they made an Image of Waxe as like as was possible to the

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deceased, and set it in the porch of the Pallace upon a great bed of Ivory, placed aloft, and covered all over with cloth of gold; this Image lay pale on the Bed as if it had been a Sick Person, about the bed sate a great part of the day all the Senators cloathed in black, and on the left side the Ladies, that in regard of their Husbands, or Fathers, were most illustrious, and none of them did wear any gold, or any other ornament about their necks, but were all cloathed in pure white garments, and by their countenance seemed very sorrowful, and they continued thus in this guise seven dayes; but every day the Phisitians came to the body, and made shew of feeling the sick Parties pulse, and alwaies reported that he grew worse and worse, until in the end they said he was dead.

As soon as they had declared him dead, the most noble and proper young men of the Order of the Senators and Cavaleers lifted the bed on their shoulders, and carried it by the Sacred way into the ancient Market, where the *Romane* Magistrates were accustomed to lay by, and renounce their command and authority.

In this place was erected a Tribunal of Wood, which seemed to be of stone, on which was framed a certaine edifice, sustained on every side with Pillars, and variously garnished with Ivory and Gold, on which was laid another Bed with ornaments of Purple and Gold woven together, and about it were the heads of divers Sea and Land creatures; now in this Bed they placed this Image of Waxe triumphantly adorned, which they had brought from the Pallace, and there stood a very fair youth with a fan of Peacocks Feathers to scare away the Flies, as if the Emperour slept.

In the meane time while the Image lay there, the living Emperour, the Senate, and their Wives drew near to the Bed, until they were all met together, there the Ladies sate under the Porch, but the Senators open; on both sides of the Market were set up Scaffolds to ascend on, which on one side were a Quire of noble youths, all patricians, and on the side a Quire of illustrious Women, which sung Hymns and other Songs in honour of the dead, with sad and mournful voyces. But I must play the Procrustes with this Discourse, and referre them that desire to know further, to *Dion*, or *Herodian* Greek Historians.

CHAP.

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CHAP. XXV.

Observations and Discourses Historical, and Fabulous.

BEfore the battel of *Phasilon* Bees lighted on the Altar, and also on the ships, presaging *Pompies* overthrow; and therefore when in the Army of *Brutus*, there setled a swarm of Bees, the South-sayers bad him to shift his Camp, lest hee should receive loss and damage in that place. Rosinus Roman. Antiq. l. 3. c. 9. Dion. Rom. hist. l. 41. Appian l. 2.

All the Statues of *Antonius Pius* in *Hetruria* were filled with swarms of Bees, which were ominous presages of his Empire. Iulius Capitolinus.

It was ever esteemed as an ill omen for swarms of Bees to light in places where they were not accustomed, and therefore reported as a presage of the death of *Claudius*, that a swarm of Bees setled on the Capitol. Cornel. Tacitus l. 12.

One speaking of the prodigies that did precede the battel of *Canna*, saith, that swarms of Bees lighted on their Enfignes. Silius Italicus.

Nec densæ trepidis apum se involvere nubes
Cessarunt Aquilis.

Among the many Prodigies ominating *Brutus's* destruction, swarms of Bees lighted in his Camp. Swarms of Bees setled in the Camp of *Dionsius* when hee fought prosperously at *Arbala*. Appian de bello civili l. 4. Plin.

Ambrose sleeping in his swadling cloaths having his mouth open, a swarm of Bees came and setled on his mouth, which the father and mother walking by, forbad the Maid that tended him to brush off, where a while continuing, at last they flew up into the air, untill they could bee seen no more. Baronius Annal. Eccles. t. 10. Cicero divina. 2. Val. Max. l. 1. c. 6.

Plato sleeping in his swadling cloaths, the Bees brought hony to his lips, foretelling the singular sweetness of his eloquence. I. Sarisberiensis de nugis curial l. 1. c. 13.

Hiero sometimes chief Magistrate of *Sicilia* the son of *Hieroclitus*, a Noble-man, who drew his original from *Celus*, an ancient Tyrant of *Sicily*, but his mothers stock was mean Iustin l. 23. I. Sarisberiensis de nugis curial. l. 1. c.

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and contemptible, for hee was born of a Maid-servant, and therefore as a disparagement to his fathers race, was cast forth, whom the Bees (wanting all humane help) fed with hony, which being known, the father by the *Augurs* counsell received again, and brought up as the Heir of the Kingdome.

Ælian l. 2. c. 53

Ælian citing *Antenor*, reports that the inhabitants of a certain City in *Creta* were forced to forsake their dwellings by certain Bees called *Cholicboides*, which did miserably molest, and sting them.

Willer. Tyr. archiepisc. hist. lib. 19. & Raimund. de Agiles Hist. Francorum.

The Citizens of *Marra*, two dayes journey from *Antioch*, being besieged by *Godfrey* Duke of *Bullen*, among other things which they threw over the walls to drive away their enemies, cast over Hives full of Bees.

Appian de bello Mithridat.

Lucullus Army besieging *Themiscyra* scituate on the banks of the River *Thermodon*, and by Mines seeking to overthrow the walls, the inhabitants opened them above, and threw in Hives of Bees among them to their great trouble and vexation.

Bonfin. l. 4. dec. ad. 3.

When *Amurath* the Great *Turk* besieged *Alba Graca*, the Inhabitants, besides other things, cast Hives of Bees among the *Turks*, whereby they were greatly annoyed.

Vitichindus l. 1 gest. Sax.

A Captain of the Emperours being besieged by *Giselbert* the King of *Lorrain*, refrained the enemies when they entred the place, by casting hives of Bees; for the horses being enraged with their stings, overthrew their Riders, or were altogether unserviceable.

Orius de rebus Eman. l. 2.

Lupus Barriga warring with the *Moors* in *Mauritania*, and besieging a Town called *Tenuli*, the inhabitants being at the last cast, threw over the walls abundance of hives of Bees, set on fire, wherewith the *Portingals* were so burnt, and stung, that they were forced to give over, with the wounding of their General, and many others.

Suidas.

Cozenours and Cheaters were thus anciently punished, they divested the guilty person of his cloaths, and then anointed him with hony all over his body, and set him in the Sun with his hands and feet fast bound, that by many reiterated stingings, and the Suns heat, they might receive a death, worthy of their life.

Georgius Braun l. 4. urbium precipuar.

In *Sivil* a City of *Spain*, if a woman beats her husband, shee is carried on an Ass through the City naked from the girdle-sted up-

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upwards, and being first anointed with hony, besides other despights, and injuries, suffers not a little misery from the Bees, Waspes, and Flies that molest and sting her.

Marcus an old man in the reign of *Constantine*, overthrew an Idol Temple at *Arethusa*, and was taken under *Julian* the Apostate, and first scourged on his naked body, and after other punishments, in the last place put in a basket, being all over anointed with hony, and so set abroad, whom the Bees (thinking hee had robbed them) stung therefore to death. Theotdore. l.3.c.7.

Hermeias the son of *Amyntor*, and *Lysodice* being a childe, and coming to the Hives to rob the Bees, was killed with their stings.

Onesilus the brother of *Gorgus* King of *Salamis* in the Isle of *Cyprus*, fighting against *Artybius* a Persian General, was slain, and his head cut off, and hanged over the gates of *Amathusium*, a City in the same Island, which hee had sometimes before besieged; into which when it was empty, a swarm of Bees entred, and filled it with combs, this is reported as a Prodigy (and doth not prejudice the cleanlines of Bees) for consulting the Oracle, they advised to take down the head and bury it. Herodot. Halicar. Terpsichore. l. 5.

Livonia is replenished with stately Woods, and those furnished with industrious Bees, which sometimes being numerous, are put to hard shifts for habitations. Mr. *Barkley* an English Merchant, did in one of these Woods eat hony out of a mans skull, wherein a swarm of Bees were, and bred as it hanged. Purchas Pilgrims 3. part. l.3.c.20.

It is reported that in the Sepulchre of *Hippocrates*, the Prince of Physitians, for a long time a swarm of Bees lived, and wrought hony in it, and that this happened extraordinarily, is concluded, because that Nurses anointing childrens mouths near the grave, with the hony easily cured them.

Dionisius the son of *Hermocrates* swimming over a River upon his horse, his horse was mired, and could not bee pulled out by any means, hee leaped off his back, and got safely to the bank, and so forsook the horse as no longer his: But the horse followed after, and neighed, whereupon he returned, and when he laid hold on his Main to mount up, a swarm of Bees encompassed his hand, which hung on his Mane a presage of his future command and Empire. Ælian. var. hist. l.12.c.40.

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Pausanias in Beoticis.

The *Trophonian* Oracle was thus found out: When as a year or two together, there was no rain, some were sent from every City to *Delphos* to implore help. To whom desiring a remedy for the drought, *Apollo* commanded them to go to *Labadea*, and seek a remedy for their evill of *Trophonius*. Going therefore to *Labadea*, but not able to finde the Oracle. *Saon* one of the Ambassadors an old man, when he had espied a swarm of Bees, resolved to follow them whithersoever they went. When therefore hee saw them flying to a Cave, hee entred in, and understood that place was the Oracle which they sought for.

Theocritus l 1. narrat. Eidyl. 7.

Comates feeding the flock of his rich Master in *Sicily*, was sometimes accustomed to offer somewhat of his flock to the Muses; which when his Master knew, hee reproved him very sharply, whom *Comates* intreats not to bee angry, for by the Muses help there should be a large remuneration. Go to, saith his Master, let us make trial whether the Muses will feed thee, and inclosed him in a hollow tree, and there left him to perish with famine. And at the years end returning, found his servant alive, and well, and many Hony-combs about him, for the Bees by a hole had entred into the tree, and maintained him.

Æsop. Fab. 85.

The Bee-master being absent, one came and stole the combes out of the Hive, who afterwards returning found his Bees plundered, and while he stood still a while to examine and consider concerning the author of it: The Bees came home from work, and finding their house robbed, and him standing by, did fal upon him, and cruelly sting him. To whom hee thus spake, *Oh you wicked creatures, you let go unhurt him that robbed you, and punish mee that am careful of your safety.*

Natal. Com. Mythyolog. l. 5. c. 11.

Melissa one of the Oread Nymphs finding Hony-combes in *Peloponesus*, invited her fellows to taste thereof, with the sweetness whereof they were so ravished that the *Grecians* called the Bees by the name of that Nymph.

Sands relat. l. 4.

Jacobus Sannazarius that excellent Poet, hath his figure cut to the life in *Mergellina* (near *Naples* where he lived) from whose mouth the Bees do seem as it were to suck hony.

Terminus.

Livy doth relate that there was found two Coffins of lead in a tomb, whereof one contained the body of King *Numa*; being some four hundred years after his death; and the other his books

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books of sacred Rites and Ceremonies. And that in the Coffin that had the body, there was nothing at all to bee seen, but a little light cinders about the sides, but in the Coffin that had the books, they were found as fresh as if they had been but newly written, covered over with watch candles of wax, three or fourfold.

Agesipolis a King of the *Lacedemonians* dying of a Feaver near the City of *Clyntbia* was preserved in hony, and so carried to *Sparta*, where hee had a royal Funeral. Xenophon de rebus gestis Grecorum, l. 5.

Claudius Cæsar had a *Hippocentaure*, a Monster, part horse, part bull, brought out of *Egypt* in hony, which *Pliny* saith he saw. Cæl. Rhod. lect. ant. l. 6. c. 2

Alfrith the widow of King *Edgar*, sometimes Monarch of this Island, traiterously slue King *Edward* his son; that her son *Ethelred* his brother law might (as hee did) succeed him. Some ten years of age was hee when his brother *Edward* was slain, and hee out of childish affection wept for him bitterly; which his mother extreamly disliking, being author of the murther, onely for his sake, most cruelly beat him her self, with a handfull of Wax-candles. So that hee would never endure Wax-candles. But another Writer saith that *Ethelred* would never endure any Wax-candles, because hee had seen his mother unmercifully with them, whip his brother in Law, King *Edward*, either report may bee true. Rob. Gloecestrensis. Vit. S. Ed. apud Ranulph. Cestren. l. 6.

Now the Sword and Scepter is taken from the *Jews*, instead of other penalties they inflict sharp penances according to the nature of the crime. Thus the Adulteret satisfieth for his hot lust in cold water, wherein hee is enjoyned to sit some Winter dayes; and if the water bee frozen, the Ice is cut out, and hee set therein up to his chin, as long as an egge is roasting. In Summer time hee is set naked in an ant-hill his nose, and ears stopped, and after washeth himself in cold water. If the penance seem lighter, they enjoyn him further to run through a swarm of Bees, and when the swelling of his body through their stinging is abated, he must do it again, and again, according to the measure of his offence. If hee hath often that way offended, hee is bound to indure that penance many years. Purchas Pilgrimage l. 2. c. 19. ex Bunsorf.

Hunding the 23. King of *Sweadland*, upon a false report of his brother in Law *Hadings death*, King of *Denmark*, invited all his Nobility to a sumptuous feast, to conclude which, hee Krantzius.

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had provided a very large vessel of Mead, of which hee drew out himself to them untill they were all drunk, and then in token of love to his supposed dead friend, plunged himself into the vessel, and so was willingly drowned (but ridiculously and foolishly) some applaud and prefer him therefore, before many heroical *Greeks* and *Romans*.

I. Magnus hist. Sueonum.

Hostilia is a Town in *Italy*, watered by the River *Po*, the inhabitants whereof (when meat for Bees grows scarce about them) carry their Hives into Boats, and by night convey them up five miles against the stream. In the morning the Bees go forth to their work, and so do they shift places, ascending up the River, till by the sinking of the Boat, they know their Hives to bee full of hony, and then return they home, and take it.

Plin. Nat. hist. l. 21. c. 12.

What is the reason why among the *Sarmatians* there is plenty of hony, and in *Africa* small store of Bees? And hee renders this as a reason, the plenty of trees, and variety of flowers, which in a few dayes after the snow is dissolved, embroider all the fields, and the many Fountains and Rivers wherewith they are much delighted.

Ambros. Leo Problem. 180.

Whereas in *Africa*, the fruits and the flowers by the violent heat are quickly withered, and the waters are scarce, so that of necessity those things being wanting wherein Bees delight, there must needs bee few, or in some places none at all. His reason is not worth an answer, had hee been read in history, hee might have learned the contrary. *Jo. Leo*, *Joam dos santos* would have (besides many other credible Authors) convinced him of the plenty of Bees in *Africa*. But no wonder if hee were a stranger abroad that was ignorant of Countries near home.

Hee affirms that in *Germany*, *France*, *Britain*, *Italy*, there are none, or few Bees, because (if you will beleeve him) there are few trees, fruits, waters.

In *Angola* they have great store of hony, which they thus procure, they hang in the top of the Eliconde tree a hollow peece of wood, or chest, which the wilde Bees being there numerous, quickly finde, and laboriously fill once in a year with hony and wax; which the Negroes then take with smoke, rewarding the industrious creatures with robbery, exile, death.

Andrew Battel in Purchas Pilgrims second part l. 7. c. 3.

It will not bee altogether impertinent to give you a descripti-

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on of this tree, with which the Bees are more delighted than any other. The Eliconde-tree is very tall, and exceeding great, some as big as twelve men can fathome, spreading like an Oak, some of them are hollow, and from the liberal skies, receive such plenty of water, that they are hospitable entertainers of thousands in that thirsty Region. Once have I known three or four thousand remain at one of those trees, and thence receiving all their watry provision. The Negroes climb up with pegs of hard wood (which that softer easily receiveth, the smoothness, not admitting other climbing) and I think that some one tree holds forty tun of water. This tree affords no less bountiful hospitality to the back, than belly, yeelding (as her belly to their bellies) her back to their backs, excepting that this is better from the younger trees, whose tenderer backs being more seasonable for discipline, are soundly beaten for mans fault; whence came the first nakedness, whereby one fathome cut from the tree, is extended into twenty, and is presently fit for wearing, though not so fine as the *Juzanda* tree yeelds, which yeelds excellent cloath from the inner bark.

This tree is alwayes green, of a strange form, especially in the branches that grow very high, and cast down very small threds, which touching the earth do bring forth roots, from whence other plants or trees do spring forth most abundantly in great numbers. By like beating of their Palm, they make Velvets, Sattins, Taffeties, &c. But I deviate too far from my subject. Linschoten 2. Book.

The burning of Waxen-candles on Candlemass-day had its original from the *Roman* Sacrifices called Februals. Beat Rhenan. annot. in 1. lib. Tertul. adverf. Marcion.

Bears are much tormented in their eyes, which is a principal cause why they so much desire to eat hony out of the Hives, that being prickt, and stung with the Bees, their throat, especially receives a phlebotomy, or blood-letting, for they have no better remedy to ease their brain and eyes burdened, and overcharged with humors. And Thevet, Cosmographie de Levant. c. 7.

In the Island of *Seylan* are certain barbarous people called *Pachas*, they live naked in the woods and thickets, their principal food is Dears flesh, whereof there is great abundance, which they shoot and kill with their arrows, and cutting them in peeces, filling the trunks of old hollow trees with hony, whereof they Teixeira l. 2. c. 35.

have

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have plenty, then they put the flesh therein, and let it remain there till times of necessity, and then eat it, conserving it onely in the hony, without any corruption.

Hackluit s Voyages, 2. part of the 2 Volume.

In the Country of *Benin* on the coast of *Africa*, is such plenty of hony, that the Natives bring to the English trading there, earthen pots of the quantity of two gallons full of hony, and hony-combs for a hundred shells.

Joaon. dos Santos liuro primeiro da Ethiop. Oriens c. 23.

About *Sofala*, and generally in the Oriental *Ethiopia*, breed *Zangoens* (if I be not not mistaken, Bees) after this manner. They make a ball of clay, and stick it in the walls or tiles of their houses, with many holes after the fashion of a Bees, or Wafpes-comb, and in every hole they put a Worm or Maggot, like those that breed in Cabbages, some green, others black, others white, others gray; so that they are not all of one kinde, or cast; but whatsoever they finde, they take and carry it unto the comb that they have made of clay, and in every hole they put a worm, and stop it up with fresh clay, and so inclose all the worms in their several cells, and there within they generate other *Zangoens*, (or Bees) (understand by generation of others, onely their transmutation, whereby they are others from what they were, and the following words import as much) with legs and wings, which when they are perfected, eat through the clay, and come forth, and flye, and after they are grown great, they make a like brood. So that of strange children of divers casts or kindes, they make proper children. A thing, saith the Author which much amazed mee. But whether these make hony, or are any wayes beneficial to them, the Relator is silent; but being a general practice, it is more than probable that they are some way profitable.

Varro.

Great is the profit of Bees in some places, *Varro* reports of two brethren in *Spain*, who had left them by their father a little Farm house, and about an Acre of ground which they replenished with Bees, and seldome made less of their hony, then ten thousand *Sestertia* yearly, a prodigious, and I think unparelleld increase.

Menna a Hermite in the Province of the *Samnites*, had for his subsistence, only a few Hives of Bees, which when a *Longobard* thief had stoln, he was possest of the Devil, till *Menna* by his prayers freed him.

Heraclius

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Heraclius the Emperour having Warre with the *Persians*, and wanting mony (the people being before impoverished by him, sent one *Nicetas* to *Alexander* the Patriarch to borrow of him the Treasures of that Church (as he did of others) who notwithstanding his refusal, carried away all he could finde but only one hundred pound of Gold; but while they were going away with it, there were certaine men that brought, as a Present, several Pots of Hony (which by a Miracle) to supply the Patriarks necessities, when they opened them they found all turned into Gold. Baron. annal. Eccles. t. 8

I subscribe not to some Papists, who pretend there is a great Majesty in their Holies (whole-lyes) from the burning of Waxen Candles, and that waxe candles for that purpose used, cannot without great Sacriledge be taken away. Valfridus, Strabus, lib. 2. in vita S. Galli.

A certaine Country-man stole a waxe candle from the Altar, and found it turned into a stony hardness, whereby melting, he acknowledged his guilt before many that stood by, and the waxe candle recovered his former softness. I might be large in such Legendary relations, but these are enough, if not too many.

CHAP. XXVI.

Observations Physical and Chyrurgical.

THe use of Hony with Bread to old folks makes them live long, for it keeps and preserves all the senses sound and entire. It is reported that *Pollio* being asked by what means men might live long and healthy, answered, by anoynting their outward parts with Oyle, their inward parts with Hony. The fruit therefore of the Bees, saith *Ambrose*, is desired of all, and is equally sweet to Kings and Beggers; and it is not only pleasing to Princes, but also profitable and healthful, it sweetens their mouthes, cures their wounds, and convaies remedies to inward Ulcers.

Democritus continued his life with the frequent eating of Hony, and bread with Hony was the *Pythagorians* meat.

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Athenæus dipnosophist. l. 2. c. 3

Aristoxenus said, they might live long without Diseases who always fed of it at dinner.

Gorop. Becan Nilotop. lib. 3

Goropius commends the hony gathered of the Heath, before the *Spanish* hony gathered of *Ladanum*, and divers kindes of *Costus*, and that because it is sweeter, and not so hot as the hony gathered of Stechados and Thyme; it opens obstructions, attenuates gross and thick, cuts and cleanseth viscuous humours, and is especially profitable for those that are troubled with the spleen.

Pliny most of all commends that hony which the Bees gather in the Dogg-dayes, almost thirty dayes after the Solstice, for which he, after the rising of every Starre, especially the greater ones, or the Raine-bow, if showers follow not, and there be a warme dew with the rayes of the Sun, Medicines, not hony are produced, heavenly gifts for the eyes, ulcers, and bowels, which if it be preserved, the Dogge-star being risen, and if by chance it fall out in the same day there be a rising of *Venus*, or *Jupiter*, or *Mercury*, there is no such sweetnes nor vertue in the supposed heavenly Nectar, to keep Mortals from Diseases, though otherwise deadly; but we have little of this in our Country, where the Hony-gathering is then almost finished, but that which is found in the lower parts of the combes, and some little that is not shut up with waxen covers.

Hony is hot and dry in the second degree, wherefore *Galen* forbids it such as were Hectical, have a Feaver, or the Jaundies, and young men; but commends it very much in cold effects, and prescribes it to such as had moyst stomacks, for moderately eating of it, it wonderfully nourisheth, and causeth both a good colour and constitution.

Hony with age or long boyling becomes bitter; it gives life to Wine when it is flat, Flowers, Fruites, and all simple and compound Medicines by mixture of it are preserved from putrefaction.

Hony corrupts by crumbes of Bread, and therefore they that sell hony, are careful lest children passing by dip their bread in it, and so it is transmuted into Ants, or little Creatures like them, if we beleeve *Paracelsus*.

Paracelsus. Hippocrat.

Hony mixt with other things nourisheth, and makes a good colour, but eaten alone attenuates rather than refresheth, for it pro-

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provoketh urine, and purgeth too much.

Hony warmes and cleares Wounds and Ulcers, attenuates and discusseth excrescencies in any part of the body. Galen & Avicen.

It is very effectual to produce hair in baldnes, for Quotidian Agues especially oyle of hony distilled. Galen.

Distilled water of hony makes a smooth skin, provokes urine, diminisheth heat in Feavers, easeth the obstructions of the bowels, quencheth thirst.

The salt of hony of all Corrosives is least painful, and most energetical, and therefore in the flesh of the yard by Chymicks, and expert Chyrurgians especially commended.

The Epicures who chiefly studied health and pleasure; did eat continually *Ambrosia*, which consisted of a tenth part of honie, as *Tzetzes* reports, concluding that the daily use thereof would prevent griefs, and keep them free from Diseases. Tzetzes.

Hony infused warme by it self wonderfully helps, exulcerated ears, especially if they cast forth ill savours, as also their singings and inflammations. Galenus.

Hony, Butter, and Oyle of Roses, of each a like quantity warme, helps the paine of the ears; he also commends Hony, and infants dung brayed together in the dulnes of the sight, and for white spots in the eyes. Marcellus Empyricus,

The rheume or droppings of the eyes in men or horses are hereby helped, I have cured a Horse stone blinde with Hony and Salt, and a little crock of a pot mixed, in less than three daies, it hath eaten off a tough filme, and the Horse never complained after. Vigetius;

Hony wherein Bees are drowned, or Ashes of the heads of Bees, with hony, clear the eyes; *Attick* hony, with the first dung of a young infant, and the milk of the Nurse mingled together, and annoynt the eyes that are dull upon what occasion soever, but first binde the party, for such is the violence of the Medicine that he cannot otherwise patiently endure it, and the benefit is so forcible, that in the third day it wil make a clear sight. Marcellus Empyricus.

Nothing is better for infants that breed Teeth, or in the Ulcers of the mouth than butter and hony; *Galen* prescribes only the gums to be rub'd with it, for it conduceth wonderfully to the

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generation, conservation, and whiteness of teeth: for difficulty
Hippocrat. of breathing, and to cause spitting, hony alone or mixed, is very availeable.

Galenus & Celsus. Abynzoar. Hony boyled with Bees, or new Cheese, stayeth a loosenes, helps the Bloudy-flux and Chollick. But before hony be used it is necessary to clarifie it; Thus, take of hony and fountaine water of each two pound, continually scum it as it ariseth, to the consumption of the water, afterwards clarifie it with the whites of twelve eggs.

Valleriola in locis com. lib. 3 Hony nourisheth not only because it is a kinde of nourishment, but also because mixed with other things, it is a cause that they are more easily carried through the body; and he counsels old men to use it much, if they would have a care of their health, and live long without Diseases, and he asserts it by the examples of *Antiochus* the Phisitian, and *Telephus* the Grammarian, who
Galen lib. 3. de sanitat tuend. c. 4. & c. 8 were old men, and did eate *Attick* hony and bread; and *Galen* testifieth the same, with often eating hony boyled, seldome raw, and yet *Galen* forbids long, or too much boyling, because it will make it bitter.

Cornelius Celsus, lib. 2. c. 3 *Celsus* reckons up boyled hony among such things as stop a Lask, the reason is, because the acrimony by boyling is taken away, which is wont to move the belly, and to diminish the vertue of the food.

The bodies of Bees taken newly from the Hives, and powdered, and drunk with Diuretick wine, powerfully cures the Dropsie, and breaks the Stone, opens the fountaines of urine, and heals and helps the stoppages in the bladder.

Bees drowned in hony, and so killed, stay vomitings, and are profitable for deafnes.

Bees powdered cure the Wind-collick, mollifie hard ulcers in the lips, and also the Bloudy-flux.

Hollerius. Hony mixed with powdered Bees and so taken, is helpful for the crudities of the stomack, it is also good for the stomach.

Galen in Euporistis. Pound Bees dead and dry in the combes, mingle them with hony, and annoynt bald places of the head, and the hairs wil spring afresh.

Erotis, c. 6. de morbis mulebr. The ashes of Bees ground with oyle, make hair white.

Take twelve or fourteen Bees powdered, in any thing every morning, and it helps such whose retentive faculty is weak, so that they cannot hold their water.

Oxymel

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Oxymel is made of water, vinegar, and hony, now water is mingled with it, that by long boyling that may be resolved or loosened which the windiness raiseth up, and that it may be more readily skimmed. In a word, that the working of the Medicine, by the mixing of water might be weaker, and more easily dispersed into the body, and hony is added to resist the flegme. Mesue.

One ounce of hony and vinegar mixed together ariseth a certain third faculty which was in neither of them before, which is most powerful and certaine to attenuate, cut, resolve thick and tough excrements, which have been bred a long time in the Stomack and Liver, and those that settle on the joynts, and cause lasting Agues.

It is made thus, take of vinegar one part, two parts hony, and twice as much water as hony; first, let the hony and water be boyled, and when they have been well skimmed put in the vinegar, and boyle them still, continually skimming them, let them boyle till there be an unity of qualities, and the vinegar be not raw, or crude, it is given from one ounce to three; *Galen* saith, if you will make it the stronger, adde as much vinegar as hony; it drives out thick and gross humours, and is profitable for the Sciatica, Falling-sickness, and the Gout; good also to gargarize with, in a Squinancy. Galen. lib. 4. de sanitat. tu. end.

Water distilled of hony four times by a Limbick, so that the hony were first boyled, makes beautiful hair, kills Lice and Nits; the hair wet therewith doth not only become yellow, but softer, and increaseth likewise, especially if it bee done in the Sun; it heals swollen or bloud-shotten eyes, and helps the hurt corners of the eyes, it is excellent for burnt places, most of all for such as are soft and tender, so that no scar will be left.

It must be distilled in a Glass Still, but first mixe with it pure and well washed Sand, and make a soft fire. The first water is cast away, the second is preserved, which hath a golden colour, and red at the last; the red purgeth out corruption in putrid wounds if they be washed with it, and a linnen cloth moystened in it, be laid upon them, and when it hath purged them, it produceth flesh.

Hony when it is distilling is wont to swell, and flow over when it grows hot, this is prevented when the distillation is performed by a woodden Sieve (made with hair) being

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placed within the cover, so that it toucheth the hony.

Hieron. Rubeus, sect. 2. c. 8

Reubeus distilleth it otherwise, and adds other cautions: he saith, the water is with difficulty drawne out of the hony, because it readily as the fire grows hot, ascends to the top; wherefore some mingle glass with it, others sand, the most doe annoynt the Still within with oyle; but it is best distilled especially where they purpose to use the dregs, by wetting linnen cloathes in water continually, and spreading them on the head and sides of the Still, and a soft fire below, by which the swelling thereof is resisted, and leaving much vacuity and emptiness in the Still, so that it be filled a fifth, or at the most a fourth part; but because sometimes a larger fire is necessary, the cucurbite must be well crusted with clay. It is excellent for a Catarrh, Cough, Spleen, &c.

Andernacus dial. 7. com. 2

Oyle also is distilled out of hony, let hony in the combes bee put into an earthen vessel, and well macerated in warme Horse-dung, until the waxe being separated from the hony, swims aloft, which being taken off, let some Flint-stones be mingled with the hony, and little peeces of glass; the first water when it is distilled is very sharp, and then comes the oyle. It is singular for the Gout, and for the cure of all Wounds.

Aldr. lib. 1. de Insect.

Oyle of Waxe is thus made, let two pound of new odoriferous waxe be melted in a Frying-pan, and then poured out into a vessel filled with Muskadine, or other generous Wine, and let it continue there until it be cold, after taken out and squeezed well with your hands, and againe melted and poured into the Wine as before, and let it be seven times reiterated; and then let it be melted againe, and three handfuls of beaten Bricks put into it, let them be well mixed together, and being all cold, let them be put into a Glass Limbeck well stopt with clay, and the joynts well lined therewith, that there be no expiration; then let a little fire be made underneath until the Cytron phlegme ceaseth to run, and then let another vessel be set under, and the fire a little increased, until the drops be first thick, and then of a Cytron colour; and lastly, drop true oyle of waxe, and let this be received in a proper vessel, mixed with the thick droppings, and let it be made thick, and like butter congealed. And now the fire must be enlarged until thick drops doe againe distill, which as soon as you see let the vessel that receiveth the

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oyle bee removed, and another placed to receive the remainder.

Oyle of wax heals the cracks and chaps of the lips or paps, and hinder not the childe from sucking, and take off all superfluous excrescences by drying, and are especially good in cold griefes. It is good for them that are troubled with the stone, provokes urine, helps the Palsie, Sciatica, contracted nerves by anointing or drinking of it; kills worms of all sorts, helps the pain of the back, cures a distempered spleen, a drop injected into the nostrils opens their obstruction. It conserves the memory, confirms the brain, asswageth the Toothach, brings forth the dead or living childe, opens the veynes, frees the lungs from thick superfluities, with sirrup of Violets, helps the Asthmatick, cures running eyes, &c. Mizaldus appendix ad centurias.

Wax, saith *Galen*, after a sort, holds a middle of things that heat, cool, moisten, and dry, and hath some kinde of thick and stopping parts, and therefore it may seem not onely to dry, but by accident also perhaps to moisten, hindring perspirations; and therefore is the matter both of heating, and also cooling medicines, and although forbidden to bee taken inwardly, yet some make Pills of wax, and others mix it with other cosives, and give it for a violent loosnes. Galen lib. 7. de simpl.

Dioscorides prescribes it in broth for ulcers of the bowels, for all wax saith hee, mollifies heats, moderately fills the bodies (which as *Dalechampius* expounds, produceth flesh) in hollow ulcers, and *Pliny* confirms the same. Dioscorid. l. 2. c. 76. Dalechamp. l. 22. c. 24.

New wax, and soft, saith *Galen*, is better than old, for medicines; yellow wax for the aery nature, doth mollifie, more loosen, and resolve the malady. And therefore new wax is often prescribed, for being often melted, it loseth the aery nature, is more earthly, and answers white wax: And white wax is most refrigerating, is most profitable for inflamed rains where the matter is to bee repelled, which yet, saith *Aldrovandus*, is neglected by practitioners in Physick.

There may bee admirable baths made of honey, which are excellent for Aches, and strong Itches, Mr. *Remnant* saith, that a friend of his had such a foul itch, that hee was like a Leper, whom hee thus cured: Mr. Remnant.

Hee took an empty Wine cask, called a Pipe, and took out

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one head, and made a liquor of water and hony, making it pretty ſtrong with the hony, and heat it as hot as hee could endure to ſtand in it, and put it into the Pipe, and cauſed him to ſtand in it up to his neck a pretty while, and this hee did three dayes one after another, and hee was recovered as clear as ever. The like experience hee made for Aches. If they bee renewed with a little hony every day it will bee better.

Olao Magno hiſt. delle coſe ſeptentrion. l. 22. c. 16.

In the Northern Regions are few Phyſitians, but the healthfull aire, wholeſome food, and eſpecially their Mead are inſtead of the beſt phyſick.

Mead, the elder it is, being well boyled, ſome ſay, ten, or twelve years old, is moſt ſovereign, and a preſent remedy for many diſeaſes.

Butler Fem. Mon. part. 2.

Mead, or Hydromel is of two ſorts, the weaker, and the ſtronger, Mead, and Metheglin.

For the making of Mead, if the Muſt, when it is altogether, bee not ſtrong enough to bear an egg, the breadth of two pence above it, then put ſo much of your courſe hony into it, as will give it that ſtrength, which is ſufficient for ordinary Mead. And afterwards untill night, ever now and then ſtir it well about the tub: According to the quantity that you will make, ſo muſt you add a proportionable meaſure of hony and water, namely ſix of water for one. The learned Phyſitian *Lobel*, requireth this proportion of ſix to one to bee boyled to four. His receit of Spices is Cinamon, Ginger, Pepper, Grains, Cloves, *ana* two drams. The ſecond morning put to the Muſt the ſcum of the hony, ſtir all together, and ſtop the tub a little backward. When it hath ſetled an hour or two, draw it out to bee boyled. And when you ſee the grounds begin to come, ſtay and let the reſt (ſave the very thick grounds, which caſt to your Bees,) run into ſome veſſell by it ſelf, which when it is ſettled, pour out into the boyling veſſel through the clean ſieve, and caſt out theſe grounds alſo into you garden.

Mathias de Lobel.

This Muſt being ſet over a gentle fire, when you ſee the ſcum gathered thick all over, and the bubbles at the ſide, begin to break it, having ſlacked the fire, to ceaſe the boyling, skim it clean. Then preſently make a freſh fire to it: And when you ſee the ſecond ſcum ready, having ſlacked the fire again, take it quickly away; then make to it the third fire, and let it boyl to

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the wasting of a fourth part, if it bee made of the washing of combs; and to the wasting of one fifth or sixth part, if it be made of clean hony; not ceasing in the mean space to take off the scum as clean as you can. One hours boyling may suffice; but if the Mead bee of clean hony, it may as well bee done in half the time. Instead of twice slacking the fire, you may twice cool the boyling Must with cold Must reserved; or else bee sure that it do boyl all the while onely at one side, and not all over. After all this put in the Spices, *viz.* to a dozen gallons of the skimmed Must, Ginger one ounce, Cynamon half an ounce, Cloves, and Mace *ana* two drams, Pepper, and Grains, *ana* one dram, all gross beaten, the one half of each being sowed in a bag, the other loose, and so let it boyl a quarter of an hour more.

The end of boyling is throughly to incorporate the boom and the hony, and to purge out the dross, which being once done, any longer boyling is unprofitable, as diminishing more the quantity than increasing the strength and goodness of the Hydromel.

As soon as it is boyled enough, take it from the fire, and set it a cooling; the next day when it is setled, pour it through a hair sieve, or linnen bag into the tub (reserving still the Lees for the Bees) and there let it stand covered three or four dayes till it work, and let it work two daies. Then draw it through the tapwaze, and tun it into a barrel scalded with Bay-leaves, making the Spice-bag fast at the tap. If there remain much grounds, you may purifie them by boyling and skimming, as before; but this will never bee so good as the first, and therefore you may put it by it self, or with some remainder of the best, into a small vessel to spend first before it be soure. If the Mead bee not much, you may tun it the next day, and let it work in the barrel. Being tunned it will in time bee covered with a mother; which if by jogging the vessel, or by other means it bee broken, the Mead will turn sowre. But so will it make excellent vinegar, and the sooner, if it bee set in the Sun, which the longer you keep, the better it will bee.

Metheglin is the more generous or stronger *Hydromel*, for it beareth an egg the breadth of a groat or sixpence, and is usually made of finer hony, with a less proportion of water, namely four measures

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for one; receiving also in the composition as well certain sweet, and wholesome herbs; as also a larger quantity of Spices, namely to every half barrel, or sixteen gallons of the skimmed Must, Eglantine, Marjerom, Rosemary, Time, Winter-savoury, *ana* half an ounce; and Ginger two ounces, Cynamon one ounce, Cloves, and Mace *ana* half an ounce, Pepper, Graines, *ana* two drams, the one half of each being bagged, the other boyled loose. So that whereas the ordinary Mead will scarce last half a year; good Metheglin the longer it is kept, the more delicate, and wholesome it will bee; and withall the clearer and brighter.

. One excellent receit, I will here recite; and it is that which our renowned Queen of happy memory did so well like, that she would every year have a vessel of it.

First, Gather a bushel of Sweet-briar leaves, and a bushel of Time, half a bushel of Rosemary, and a peck of Bay-leaves; Seethe all these, being well washed, in a furnace of fair water; let them boyl the space of half an hour, or better; and then poure out all the water and herbs into a fat, and let it stand till it bee but milk-warm, than strain the water from the herbs, and take to every six gallons of water, one gallon of the finest hony, and put it into the boorn, and labour it together half an hour, then let it stand two dayes, stirring it well twice or thrice each day. Then take the liquor and boyl it anew; and when it doth seethe, skim it as long as there remaineth any dross. When it is clear, put it into the fat, as before, and there let it bee cooled. You must then have in readiness a tub of new Ale, or Beer, which as soon as you have emptied, suddenly whelm it upside down, and set it up again, and presently put in the Metheglin, and let it stand three dayes a working, and then tun it up in barrels, tying at every tap hole by a Pack-thred, a little bag of Cloves and Mace, to the value of an ounce. It must stand half a year before it bee drunk.

If you marvel that so great a quantity of water is required, it is partly because of the goodness of the hony, which being pure and fine, goeth further than ordinary; and partly that it may have the longer time in boyling, before it come to its strength, and therefore some will have eight parts of water to one of hony, but then they boil it so much the longer, The third part at least being wasted.

CHAP.

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CHAP. XXVII.

Of divers kinds of Wild-Bees.

THere is one kind not half so bigge, as a Hony-Bee, with a bright shining green head and fore-part; she hath longer horns than a Hive-bee, she hath four wings, her neather part is of a light shining Carnation on the out-side, the belly of a greenish shining gliftring colour, almost as bright as the shining of a Glo-worm, with a very large long sting (not forked) or somewhat like to a sting. I could not force it to enter it into my hand, whether it wil sting I know not; that which is equivalent to the skin is as it were continued without ringles; this Bee is very strong, gathers as the Hive-Bee sandaracha; and breeds in holes of old posts, divers near one another, we may call her the gliftring Bee.

There is another sort of Wild-Bee which is very laborious, She is not so great as a Hive-Bee by a third part, but in shape and making altogether like her, the mouth opens side-ways, wherewith she holds very fast, like pinchers, her hinder leggs are of a tawny colour, the ringles of her hinder part gray, the rest of a blewish black, her fore-part is partly black, and partly gray, she useth to abide (if my memory deceive me not) in Brick-walls, in holes in the morter between the Bricks, many near one another; we may call her the Mortar-Bee.

There is another sort not half so great as the former, but grayer, she diggs or mines perpendicularly into stiffe clay ground in High-ways, or Foot-path sides, the earth that she works out, lyes round about her hole like the casting of a Worme, but much finer; after she hath entred three inches right down, she makes traverse holes one under another, sometimes two, sometimes three in breadth, as several cels, or chambers where she breeds her young, which are not Worms at first, but have a perfect shape of a Bee, herein concurring with the Queen-bee, and though she be laborious, and gathers much Bee-bread, yet could I never finde any thing provided before-hand, or laid up in any cell, but all is consumed by the young, of which I have found neer forty belonging to one down-right hole (not come to

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maturity, and maintained by one) all in several cels or partitions one above another, the transverse holes being open to the down-right, that so they may be visited and fed by the breeding or Mother-Bee, which confirmes my former assertion of the old Bees feeding the young. This sort of Bee is very Political, living by hundreds, nay thousands near one another, but each in a distinct mansion, we call them the Earth-Bee.

There is another sort about the length of a Hive-Bee, but broader and greater made, like a small Humble-Bee, but differing in colour, she hath a round head, broad face, with long horns on the head, a ring of yellow turning upwards, above the mouth the chaps are indented, and hold like Pincers, the back and head are of a dark russet, six dew-clawed feet of a light browne, she hath four wings, her neather part is of a dark black, with five yellow spots on either side of the edges of every ringle, she hath a broad tayl; this kinde copulates often openly, while she is at work all the Summer; she purres, or darts too and fro as she gathers, without a Sting, makes a louder and clearer sound than the Hive-Bee.

There is also a smaller sort of this kind, in nothing differing but in the magnitude, these breed in clay-walls of houses and barns, in holes in the clay which they make many together, like several inhabitants to make a Town, but each hath her peculiar house, or hole.

There is another sort of wild Bee, altogether as long as a Hornet, but the neather part not above half so great; it hath eight ringles, the three next the incision of a shining black, the four next towards the tayl, which grow all less one then the other downwards, of a light Orange, and the tayl of a bright brown, the fore-part and wings (which are but two) and belly are of an Orange colour, the head not very round, the mouth piked, or like a Birds bill, but the lower chap longer than the upper, which opens not sidewaies as other Bees, but one over the other, two short horns on the head, but two wings orange coloured, somewhat shorter than the body, six dew-clawed feet of an Orange colour likewise, she buzzeth not so loud and smart as the Scarabee, she lives by foot-path sides, and bare places of fields, of a quick sight, and not easily taken, without a sting, copulates frequently, feeds on Flies and Grashoppers, and

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and this observe as a general rule, that few of those sorts that have but two wings gather Bee-bread; I might describe divers others, but not being able to recite any particulars of them, I will not trouble the Reader any longer.

CHAP. XXVIII.

Of the Waspe.

A Waspe is a flying oblong Insect with four wings, of a bright Ash-colour, the two inmost neither half so long, nor so large as the out-most, six yellow dew-clawed feet mixed with Chesnut-colour towards the extremities, two black moveable horns on the head, growing on either side as high as the top of the eyes, the head is black and hairy, the fore-head divided into three yellow spots, with a black stroke down the middle, the jaws yellow without, black at the mouth, the jaws hath not the solidity of a bone, but is like a strong gristle, indented like a Saw, the back is for the most part of a shining black, and the belly also, the neather part is a bright yellow in the scales, but black bars, in the opening of the upper scale, the black inlargeth it self towards the middle of the scale; and lastly, she hath a venemous spear wherewith she wil prick often (contrary to the Bee) for it is not barbed.

The Waspes Nest is begun of one, not many mother Waspes or breeders as some imagine: the mother Waspes goe not abroad after they have bred many young, but are maintained by their posterity at home; whether the old breeders continue longer than a year *Aristotle* questions, and *Scaliger* likewise, but determine not, it being a secret not then known; but it is apparent they continue no longer, for their wings are worn, and thereby are they disabled for flight, much more for breeding.

The mother Waspes have stings, and use them, and the reason of their abode at home, is not because they are great and heavie bodied (as some) for their wings are proportionable to their bodies, but with their much working in the Spring, making their Nests alone, breeding and feeding their young they wear

Arist. de hist. anim. lib. 9. c. 65.

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their wings, and therefore after a while ſtirre not abroad, but order all at home.

The Waſpes Neſt is made for the moſt part in the ground, (ſometimes in the thatch of a houſe) in a hole begun by a Mouſe, or Mole, not very deep, about a foot and a half, ſometimes two foot from the entrance, for the manner of their work, making of their combes, breeding and feeding, they doe almoſt wholly agree with the Hornet and the Bee, for Bees, Hornets, and Waſpes are alike in all, as an Aſſe, Horſe, and Oxe, and how Hornets breed. See *Cap.* 10. *pag.* 43.

Scalig. comment. in Ariſt. de hiſt. lib. 5. c. 19.

The Waſpes Neſt is made Oval, ſome conſiſt of eight combes or ſtories one beneath another, faſtned ſtrongly by many peggs, or pins one to another, about three quarters of an inch diſtance between combe and combe, the middle combes are about nine inches in the Diameter, all round, and the whole involved with a five or ſix doubled folding, or watered cover, yet all wrought into one intire peece, conſiſting of the ſame matter with their combes, being greeniſh, ruſſet, and gray, whereas the combes are of a dark ruſſet, with only one hole through the middle of the cover, bigge enough for one Waſpe to enter at once; the cover is faſtned with ſome pins to the ground, or roots in the earth.

The middle of each combe is ſomewhat Piramidall, bending upwards, and hollower in the inſide than the outward part of the combe, and the center hath a very ſtrong pin to faſten it to the next combe, which runs like the axeltree or maine poſt through them all, and in leſs ſpace than every inch in the whole breadth, are rows of pins, or pillaſters, which faſten each combe very firmely to the next, ſo that they wil not eaſily be ſeparated. And herein they ſeeme to have been exemplars of Architecture rather than Bees, faſhioning all their combes orderly, ſtrongly, uſefully, and comely; the pins or props are framed broader, & bigger, both at the top and bottome, than in the middle, with two or three buttereſſes both above and below, whereby they hold more ſtrongly, and being ſmall in the middle, leſs hinder their paſſage about the combes.

The Waſpes combes are plaine on the upper part, but filled and furniſhed with hexangle cells downwards, the cells are not ſo deep, nor yet ſo long as the Bees, and they are not made ſtraight,

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straight but asloop, that the young may not so readily fall out as they would if they were directly downwards.

The seed is at first almost as small as a Mustard-seed, of a darkish white, not spherical, but oval, and they fasten it not to the bottome of the cell (*sed ad cellæ latus apum more*, saith *Aristotle*) but to a corner or angle, a pretty distance above the bottome, and observe (for the most part) an exact order in disposing of their seed, that they keep the same angles in every cell, not one in an angle of the South-side of a cell, and another in an angle of the North, or the East, but all in the South, so that the seed lyes orderly in rows: But if one layes her seed in the contrary angle (as sometimes, though seldome) then the next takes it for a rule, and it is punctually observed perhaps through a whole range of cells. Arist. de hist. Animal. l. 5. c. 19.

This seed being hatched (for the manner how, see the tenth Chapter) grows a little while by vertue of the seminal power, it sticks at one end, bending towards the middle of the cell, but somewhat erected (or rather dejected, for the head is downward) that it may receive food, and when it fills the breadth of the cell, it grows loose, and falls (or to speak properly ascends) to the bottome of the cell, for the mouth of the cell is downwards raising it self; and now the mouth of the worm begins to bee visible, and it is daily fed, as wee noted of the Bees (for they are Insects of the same nature) but somewhat degenerating; and *Pliny* saith, in *fœtu, eadem prope natura quæ apibus*, and grows to the full dimension of the cell: when as wee noted in the Hornet, it grows dull and torpid, and refusing meat is shut up by a cover wrought over the head: But to return back a little. Georgics Pisicatorius.

At first, after the seed is hatched, it is oval towards the head, near to the tail there is a blackish spot; It will contract it self almost round, sometimes as a Caterpiller, when it moves, as if it would go, for indeed the worm makes no progressive motion.

If you break the worm, in the body is a thick watrish humour, with a harder substance, like a black list in the middle of it, and that from end to end.

The transmutation begins to bee first visible in the superior part, and the eyes are first discerned, and the incision between the

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the head and the shoulders, which yet as it grows more perfect, becomes smaller, the middle incision is scarcely visible, when the eyes may bee seen, then the legs, and the horns begin to bee framed, and the wings are last finished. When they are perfect, they thrust up the covers over their heads which hang at their backs until they come forth.

They excern an excrement while they feed, which is contained under them in the bottome of the cells, but assoon as the young eat their way forth, the older Waspes carry it out of the neast.

The young Waspes (though the combes bee taken out of their neasts) that are shut up (not the other, for they must bee fed, or they will dye in three or four dayes) will come to life, and perfection, although slowly, because of the small heat; but for above three weeks I have had them in a chamber successively come to perfection.

Scaliger com. in Arist. de hist. l. 5 c. 19. Arist. in loc. pred.

They gather no hony, that is, make it, rob they do, but then they spend it as fast as they get it, yet *Scaliger* saith mellificant, they begin to breed in the latter end of the Spring, contrary to *Aristotle*, who saith, they breed not in the Spring, but Autumn, whereas they miscarry by the end of Autumn.

They breed first their own kinde, and by the end of *August*, ordinarily have fledge Drones, which are about the greatness of an old working Wasp, but somewhat longer, whose covers they heighten above the combs when they shut them up, but in cells no greater than the Waspes.

The Drones have no sting, they have two testicles, which on crushing are easily discovered, and they are coated with a hard black tunicle, joyned together like a pair of breeches, sharper towards the point, but broader upwards, and at the upper end not coated, but full of a whitish liquor; the testicles are somewhat like, but that they are united together to the young coated Grashoppers whilst they are in the dams belly.

The Drones are not of so bright a yellow as the Waspes, and their moveable horns are a great deal longer, yea longer than the mother Wasps horns, which they spread very wide like a fork, but not right forth, widening them by degrees, and towards the tops, bending them side-wayes.

Presently after they begin to breed Drones, they breed also mother Waspes, which are twice, nay almost thrice as great as the

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the Drones, these begin to forsake the neast about a week in *September*, and so daily as they come to perfection, being first made prolifical by the Drones with whom they couple. The Drones continue in the neast, as long as the working Wasps, namely untill the wet, and cold in *October* puts a period to their lives. Whereas the mother Wasps, as soon as they have engendered, with the Drones flye forth, and shrowd themselves in hollow trees, thatch, or such like places, where they lye in a dead sleep without feeding till *March*, when the first warm weather revives them, and causeth them to flye abroad, and then they feed, but if after they have been a while abroad, the Spring bee very cold and wet, they then for the most part, miscarry, and dy.

For the mother Wasps, they make larger hexangle cells in the lowest combs than for ordinary Wasps, and also inlarge the covers above the combs near a quarter of an inch higher than the comb, the covers and highings are very white like fine white paper.

The young Wasps are somewhat gray at first, and after turn to a bright yellow, and the Bees are more white at first, and after turn to a bright brown.

Aristotle doubted whether the Wasps lost their stings in Winter; while they are in a deep, or dead sleep, they exercise them not, but revive them by a fire, or in your warm hand, and you may experimentally affirm the contrary. That they did copulate, *Aristotle*; acknowledgeth, but whether the male and female, both had stings, hee professeth that hee was ignorant. Arist. de hist. Animal. l. 9. c. 65.

Waspes are a kinde of Canibals, for they rob from all, and eat not the Bees provision only, but the Bees themselves, nay they will eat the young Wasps of another neast.

Ouce, Waspes are very strong, and daring creatures, especially near their neast, not fearing to anger, nay to injury the most mighty. The Poet elegantly thus expresseth it. Spencers visions of the worlds vanity.

A mighty Lion, Lord of all the wood,
Having his hunger throughly satisfi'd
With prey of beasts, and spoyl of living blood
Safe in his dreadless den him thought to bide:

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His stoutness was his praise, his strength his pride,
And all his glory in his cruel claws:
I saw a Wasp that fiercely him defide,
And bad him battel even to his jaws.
Sore bee him stung, that it the blood forth drawes,
And his proud heart is filled with fretting ire,
In vain hee threats, his teeth, his tail, his paws,
And from his bloody eyes doth sparkle fire.
That dead himself hee wisheth for despight,
So weakest may annoy the most of might.

CHAP. XXIX.

Of the Hornet.

A Hornet is a flying Insect, more than twice as great as a common Wasp, with four wings, the inmost smaller, and not so long as the utmost by a third part. For shape shee is like a Wasp, but differs in colour: All the back wings, and belly, legs, and horns are of a bright Chesnut colour, and some part also below the division in the middle, and then yellow scales, and Chesnut-coloured openings, or bars with spots on either side of every yellow scale, on the upper-side but more Chesnut-coloured on the under-side. Her fore-head is of an iron colour, in the middle of her for-head is a yellow spot like a heart, on either side whereof grows her moveable horns, on the out-side are her eyes oblong, and a little prominent, her face is a yellow square like a plate, her cheeks or jaws are yellow without, and black in the mouth; her jaws are a very bone indented like a saw, more thick toothed, and finer than a Grashoppers, contrary to *Aristotle*, and *Pliny* also, who affirm of all Insects, that they have no boniness in any part, whereas a Hornets jaw, and also a great Grashoppers, are a solid bone without, and within of an equal hardness.

Arist. de hist. animal. l. 4. c. 1.

Hornets have no fangs, their tongue is divided into small fibers: Their breathing is visible, cut off one of their heads, and you shall see (a while) an expulsion out of the neck of a whitish moisture, and then drawn in again, at first very strongly, and

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and then with more weakness, and at last ceasing, yet life continuing in either part of the divided body above an hour.

A Hornets intrails is contracted in the body, but extended, is as long as the body, they have a very large cavitie in the end of the tail, out of the middle of it, the sting is extended and drawn in also as they please, it is not hollow (as some think) that I could discern; near to the tail I found in dissecting a Hornet (and never but once) a white egg as great as a lentill, and just such a one as I have seen in the combs, but never dissecting divers Bees, and Wasps could I finde any, nor yet in Hornets (excepting one) perhaps they are very small (if at all) and quickly grown, and suddenly ejected.

Some suppose them to bee bred of a horse: *Cardan* of dead Mules: *Virgil* of Asses: *Plutarch* of a rotten horse; and so also some conceit Waspes are bred, but with us they are bred for the most part by generation: Of their copulation *Aristotle* was ignorant, they breed most commonly in hollow trees, in thatch, or in houses, in empty Bee-hives, rarely (but sometimes) in the ground: For the manner of their breeding, see the tenth Chapter, and the former Chapter of Waspes, with whom for the making of their combs, hatching and feeding their young, they do altogether agree, they are not so prolifical as the Wasps, for their combs are never larger, and the cells being much greater of necessity, they must breed fewer: Their stinging is very dangerous, but otherwise they are not so mischievous as the Wasps, for though they sometimes kill a Bee, yet they rob not the Hives, they feed on flesh and fruits, and most of all of ashen trees, feeding of the bark, making the boughs whiter, and in Autumn gather plentifully of the Ivy, contrary to *Aristotle*, and others, who assert, they gather of no flowers, and herein to differ both from Bees and Waspes.

Cornel. Agrippa l. de occult. Philos. Arist. de hist. Animal. l. 9. c. 66.

They sting dangerously, some creatures deadly, Dr. *Penny* reports, that being at *Peterborough* in a publick street of the City, hee saw a Hornet pursue a Sparrow, whom at last shee struck with her sting, and therewith presently killed her, and filled her self with the dead Sparrows blood, to the astonishment and wonder of many beholders.

Pennius apud Musæum de Insect. l. 1. c. 9.

It is reported by *Aristotle*, as a strange and almost incredible thing, of certain Mice in *Persia*, which being dissected, great

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with young, those young not yet kindled, have been gravid, whereas in Hornets and Wasps there is a greater marvel, for the breeders coupling in Autumn, continue to bee prolifical in the Spring, and the young bred of them, not onely in the first, but in the third and fourth generation have a procreative power from their great Grand-mothers copulation.

Bl. lib. 7. c. 2. The water of distilled Hornets, or Wasps, or wherein they have been boyled, if it do but touch the skin, the place will swell so, that there will bee the symptomes of a dropsie, or poyson, or some great distemper; but Treacle drunk or annointed on the place, is a cure without any pain; with this Harlots and Beggars deceive the most circumspect and wary, as if they were with childe.

One thing more which I had almost forgot: If the hole in the tree wherein they breed bee large, when they bee numerous, they will work it up (all but a small passage for entrance) with the same matter whereof they make their combs.

CHAP. XXX.

Of the Humble-Bee.

THe Humble-Bee is of various magnitudes and colours, some greater, but shorter than a Hornet; others as little, but rounder and shorter than a Bee. All of them are very hairy, they have two horns, very strong indented jawes, wherewith they hold or bite very hard. Some have their heads cole-black, the upper part of the back yellow, the lower part black, they have four wings, the belly all black. In the nether part first a division or ringle of shining black without hair, then a ringle of pale yellow hairy, then a ringle of black, and so black to the taile, but thick and full of light gray hairs, that it seemeth gray, thee hath six legs with scabrous feet. They carry their Bee-bread on their legs, as the Hony-Bee, but no wax, as *Scaliger*, *Pliny* and others, whether they carry the matter of their combs

Plin. Nat. hist. lib. 11. cap. 21.

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combs on their thighs, I am not certain, but believe it, for they gather onely on flowers, but the Hornet and Wasps carry it in their mouth.

They breed saith *Aristotle*, on the ground among stones, and have two or three entrances to their neast, but it is not so; but they breed either upon the ground, in the long grass, most commonly in Meadows, and spared layes, or else in a hole in the ground, much deeper than the Wasps: all their neast is covered, nay environed with moss. Arist. de hist. Animal. l. 9. c. 67.

Aristotle and *Pliny* are very brief in the history of them, and therefore very obscure; some imagine the reason hereof was because their nature was well known, but I rather conclude, because they knew little, or nothing of them. And it is very evident because they confound the Silk-worms, and the Humble-Bees under the name Bombyx, and *Scaliger* also as it appears knew little of them. Scaliger Comment. in Arist. de hist. l. 9. c. 66.

The nethermost ringles of the black Humble-Bee, are as black as jeat, clear and shining; nay more transparent, for it will reflect an image, but the many long hairs, except it bee near at hand, nay in your hand, do somewhat obscure it.

It seems they are very rare, and scarce known in *Italy*, for *Aldrovandus* glories in a neast of Humble-Bees that was found by his Apothecary gathering simples, and brought to him (as hee saith) not onely to delight him with a novelty, but to communicate as a secret of nature to posterity. Aldrovand. de Insectis, l. 1. c. 4.

Hee supposeth them a kinde of wilde Bee, and propounds it as a Query, whether *John Baptist* in the wilderness lived not with their hony?

Aldrovand. supposeth wax may bee had out of their combs; but this hee borowed from *Aristotle*, who saith, they make wax, but paler than Bees, but melt the combs, if you can. Arist. de hist. Animal. l. 5. c. 19.

Their combs are oblong cells as big as Acorns, but not altogether so long, clustering together (one somewhat higher than another, somewhat like a bunch of grapes inverted, sixteen or eighteen joyning together (and then another like comb lying close, but not fastened to it, and

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so another) of a dark yellow, which (if after they have bred their young) they fill with Bee-bread, and some with hony; their hony is of a bright yellow, very sweet, but not so pleasant as the Bees, having a rank taste (occasionally) from the ground, their combes are not wax (as before) though gathered of the flowers, they are as tough brown paper, but not of so dark a colour, broken, they shew like *Japan* paper made of Cotton, woolley.

They ingender with their ayls opposite one to another, in the meane time resting on some plant, or the stump of a tree, they continue long in venery, and while they copulate, often clap their wings, and make a shrill noyse; their maces they chuse in the Nest, and are carried away by them. These as other Insects before described, after they have done breeding of Females, about the end of *August*, breed Drones for the propagation of their kind.

It is remarkable, that though the cels or pipes wherein they breed are of a like magnitude, yet the Humble-Bees in the same Nest are of various magnitudes, some more than twice as great as others, herein differing from Bees and Waspes, which continued in the same dimensions that they were first Metamorphosed into, only when they are strong and lusty, seeme somewhat fuller and plumper, but when they grow old, then they grow lank and wither; whereas the Humble-bees, many of them double their first magnitude.

They are very laborious and hardy Creatures, working in such weather when the Bees dare not, and continuing it many weeks, after Hornets and Waspes are laid up, or miscarried.

There is another kind of great Humble-Bee, in the fore-part exactly agreeing with the former description, but the neather part is altogether of a shining black, and not so hairy as the former, it is sharp-pointed at the tayl, and hath but one cavity, out of the which cometh a sting, which groweth out of the under part of the tayl, and is forked like a Snakes tongue, having two points forth-right, not barbed like a Bees, so that it stinges more than once; there are two covers on either side of the sting to keep it close and safe, and these are as long as the sting, but bigger, rougher, and spreading on the top, I conceive to hold the

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the sting in, in the act of generation; there are six partitions or ringles on the neither part, and on the outsides, especially of the fourth and fifth golden coloured hairs.

The Humble-Bee first described, affords some special rarities not observed by any, and therefore I must return to her again. In the tayl being opened, is a double cavity or hole; the one (if I mistake not) for generation and parturition, and the other for the evacuation of excrements; in the neather part (dissecting it) I found as in a Hive Bee, a bladder to which adjoyns the entrals, not so white as in a honie-Bee, then you shall have (as I have often found) their young (but one visible at once) which are not excluded, torpid, and liveless eggs, but live and grow in the dammes belly; I have found some as large as great Tares (like the Worms in the combes) so that all the parts of the Worme are very visible, and these have lived after I have cut them out some houres, and would continually contract and gather themselves into a round, and then again extend themselves, but were not able to make any progressive motion, being without feet.

In the breast I perceived a little thing to pant, and beat a great while after I severed it from the lower part at the incision, when I after, opened the breast, I found four several parts like several members, but I was not able (my sight being weak) to distinguish one member from another, but concluded there was a heart, liver, and lungs, all were reddish, but some parts were more red than others.

Under the horny tunicle of the eye is a white moysture, and something white likewise, like brains in the middle of the head; her tongue is drawn so close, partly under her neck, and partly into her mouth, that it is scarcely visible, but when she works; being dead, I found it much longer than a Bees, as long as a Barley corn; she hath two fangs, on either side one, the tongue at the root is as great as a small pin, underneath of a black colour to the middle, where it is divided into three parts, two shorter on either side, and a longer in the middle, so that it hath a triple tongue; this sort that breed their young within them, are without a sting; on their bellies near the roots of their leggs, are little round reddish creatures, with very long horns, with six leggs, which run very quick and swift, which (I beleeve),

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leeve) are a kinde of Lice proper to them; their taile stretched out, is very like their mouth, being as it were a complement of clawes meeting in a round, and this is proper to this kinde without a sting, which I therefore call the Claw-tailed Humble-Bee.

Those which breed a living creature within them, after a sort produce it egg-fashion, for it is covered with a thin membrane like the shell of an egg, but I discerned no such membrane encircling the worm in this Humble-Bee.

Arist. de generat. Animal. l. 3. c. 9.

This grey Humble-Bee in the taile is somewhat broad, and hath two circular horny claws, or pincers not visible, till they bee drawn out, and within them two other shorter but not circular.

Some creatures saith *Bodinus*, conceive eggs within them, and there hatch, and bring forth a living creature as the Viper, and all kinde of Whales, but neither hee, nor any other mentions this Humble-Bee.

Bodinus Theatrum naturæ l. 3.

Whatsoever saith *Aristotle*, bringeth forth a living creature and not first an egge, hath breasts, and all that have breasts, have paps or nepples except the Dolphin, which hath two pipes, on either side one, which the young ones suck: The Philosopher, and *Scaliger* his Commentator, except not the Viper, nor the Slow-worm, because they perhaps concluded, that they hatched the young of analogical eggs within the dams belly; I am sure they ought to have excepted this kinde of Humble-Bee as also that Flye that wee spake of before out of *Scaliger*.

Arist. de hist. l. 2. c. 6.

How they order their young after they bee excluded, I cannot yet determine, for I have not found any of their neasts, since I observed this particular.

The Cells or Pipes wherein the young are bred, are not flat at the top as the Bees and Waspes, but oval, and are all of one matter and colour, whereas the covers of the Wasps and Hornets are, though of the same substance, yet whiter and finer.

CHAP.

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CHAP. XXXI.

Of the Grashopper.

IN the production of no creatures is nature more serious; or rather more wanton than in Grashoppers, who is able to describe their various colours? or the divers forms of their bodies, or can exactly report their walking, leaping, flying? With us some are green, some tawney, some russet, in *Ethiopia* red and yellow, in *Africa* white.

One hath written a Tractate of seven kinde of Locusts or Grashoppers according to the Scriptures, and Rabbins; and yet mentions, not those four kindes enumerated among clean creatures, and allowed the *Jews* for food, namely *Arbeth* a most prolifical kinde of Grashopper, which therefore had this name according to *Kimchi* and *Broughton*. The second kinde is *Solaam* by the Seventy, ἄττακον, *Hieron* calls it a Scarabee, but not rightly, for it is a swift creature, going on the four fore-feet, and leaping with the two hindmost which are longer than the others. The third sort is *Chargol*, which in our Bible is translated a Beetle, but there is a great difference between Beetles and Grashoppers, the *Greeks*, translate it ὀφιόμαχον, for it fights with a Serpent, and strangles it, as both *Aristotle* and *Pliny* record; and *Maiolus* in his Colloquies tells us, That his Gardener returning from work, saw one of these Grashoppers conflicting with a Serpent, which at last it killed. And therefore *Niphus* was too bold to translate it a *Scolopendra*, or Aspe, when as the Philosopher calls it a Grashopper, and the Seventy translate it a Locust. The fourth kinde is called *Chagal*, the *Greeks* call it ἀττέλαβον. It is a cruel devourer, not onely consuming the fruits, but stalks, nay barks of trees.

Fran. Screcarus. de septem generibus locust.

Levit. 11. 22.

Arist. de hist. Animal. l. 9. c. 6.

In the Scripture wee finde five other kindes, *Gazam* from shaving, *Jelak* from licking, *Chasil* from destroying, *Thelatsal* from rust, which it occasions to the fruits, and *Chenamal* from staying, because it never willingly forsakes its place. *Modius* on *Joel*, and *Levit*, reckons up various kindes of the first sort called *Arbeth*.

Rhodulph Modius in Levit.

Moreover in the month of *May*, out of a spittle that hangs

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upon herbs is produced a green winged creature, in shape very like the little Grashopper, it leaps, and after flyes. Wee use to call the frothy matter wherein they are bred Wood-sear, that is the corruption of the woods; I know not the reason of the name; others call it Cuckow-spittle.

In *Norwey* it often raines a little four footed beast, as great as a Rat, of various coloured hair, which feeds of all green things like Grashoppers. When their food fails they dye, and the aire being corrupted with their stench, causeth to the inhabitants Megrims, and the Kings-evill. They call it *Lemmer*; this though not properly a Grashopper, yet like them very destructive.

Scaliger de Subtil. exercitat. 192.

Of what form was the μελουρὶς of *Suidas*, the μυλακρὶς of *Cælius*, the μαλουκρὶς of *Nicander*, βρέττανα, ἄχηρος, πεταλὶς, ἄρπας, θολουκοτρῶξ of *Hesichius*, παρνοψ of *Aristophanes* μάσταξ of *Eustathius*, ἄλιγος and πυαλὶς, of *Phavorinus*, *Ludolochra*, of *Isidore*, and many many others mentioned by authors differing one from another, but yet not fully described, much less their natures, so that wee need an *Oedipus* to reveal, and discover them.

A Grashopper hath two very moveable horns, as long as the whole body, on either side of the jawes two short ones; It hath two broad lips shutting flat on the other, and two lesser that shut side-wayes, all which together close the mouth, and the head, with the lips closed, somewhat resembles a horses head. It hath two round prominent eyes; *Nigidius* denied that they saw at all, as *Pliny* records, when as they have clear and glassie eyes, yet covered with a horny tunicle (the eyes are not moveable) there is a visible *Pupilla*, six feet, the hindmost as great, and as long again as the formost to leap withall, and raise it self up, with two joynts in every one, near their setting on to the breast, these two are very near one to the other. They have also a joynt in the middle, the upper part as the thigh greater at the top, and smaller downwards, and smoothe. The lower parts (which are their legges) rough and scabrous, and several pliable joynts in the feet, and as it were visible toes, which are rough and dew-clawed. A long smooth taile more than half the length of the body, sharp-pointed, and two short little tants, or pricks growing near the end of the tail, pointing towards the extremity of it.

Plin. Nat. hist. l. 11. c. 37.

When

When you hold it by the wings, though it neither stirs, nor strives, yet shall you both see and feel the whole body beat and pant, as also when it creeps, or stands still, although not so much, lest of all when it is in motion. It hath four large wings, but the under wings lye folded or doubled, which deceived *Willichius*, who unwarily beholding them, took them to bee several, and therefore published that they have six wings; the under wings being open, they are very fine and membranous, near an inch broad, spreading like a sail; the upper wings are crusty or shelly.

Jodocus Willichius in suo de Locustis dialogo.

It hath as it were, a scaly Gorget, from the head to the incision or back. The back is more hard and shelly than the belly, and hath several semicircular equidistant strakes down to the belly. The belly is very soft and white on either side, all along to the tail, and green in the middle.

On the breast are sharp pricks six in number according to the legs, against each leg one. When the head is severed from the body, the jawes, the lips, the horns, all move, but the head dyes sooner than the rest of the body. The body will leap a great while after the head is off. In the stomach is a thick juicy moisture. The breast being opened, first appears the heart, and then other large members, one like the liver of a reddish colour, another less and grayer, which I suppose to bee the lungs. In the belly I have not found fewer than eighty young ones, in some one hundred. They grow quickly as great as Ant-eggs, and as long, they are first yellow and soft, full of a yellowish moisture, then ruby, then of a tawny colour, when after a certain space this softer tunicle hardens into a shining black coat, or shell, long and flattish, and these alterations are all in the same Grashopper, for in some you shall finde all without coats, in others, some with coats, and some with none at the same time.

They have three black teeth in either jaw, the teeth and jaw are one peece, and of a bony substance. In the head is a manifest brain, or at least somewhat equivalent.

Some Grashoppers have not the long prick at the taile, but two tants above and two shorter underneath, and some have stumps instead of wings, but howsoever they variously differ in their externals, yet in all that I have dissected are alike, the vitals indeed, and

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other particulars, are not so visible in the smaller, as in the greater.

Grashoppers copulate after the manner of other Insects, the less ascending the greater; for the male is the lesser. They disclose their eggs on the earth, fastening a pipe which they have at their tail to it. The males have none: All lay their eggs together in one place, so that they make a kinde of combe, but not on the superficies of the earth, but a little underneath, then the form of them as they were first produced, being changed out of that earthy cover, appear little and black Grashoppers, and after the skin being broken on every side, they become greater, they bring forth their eggs in Autumn, and presently being delivered of them perish, for there breed certain worms about their necks which strangles them saith *Pliny*, which eat through them, saith *Scaliger*, and the males also dye; they are quickned, and come from under the earth in the Spring.

Arist. de hist. Animal. l. 5. ca. 3.

Grashoppers breed not much on mountainous, or squallid moist lands, but in Champion grounds which are apt to chap, for they lay their eggs in the chaps and cranies, out of which, Winter being past, in the beginning of the Summer following, of such eggs as are alive, come the Locusts or Grashoppers.

Fr. Valeriola.

They copulate thus, the male ascending the female, puts in those two tants or pricks that are eminent in the end of the back, by turning back of the tail into the females womb, and they are very long and closely joyned together, that they can scarce bee severed, neither yet by leaping or motion, no nor yet without difficulty with your hands.

The female in her venery, moves her belly earnestly, and closeth in the lower part to the male, and holds him very long, sometimes with the opening of her womb, sometimes with a strait shutting of it, making her dalliance more delightful; for while her womb opens, the male more deeply insinuates himself to the bottome of it, and when it is contracted, is more delighted with the pleasure of it.

There are seen two passages in the females privity severed each from other, and covered with a thick coat, it is black on the out-side, and hard and cartilaginous, but within seems somewhat rough and scabrous, with certain wrinkles. At the bot-

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bottome of this covering, the womb growing white, is like a womans privy parts. The male after copulation dyes; For by a long continued use of venery, they spend all their radical moysture and spirits also. The females after they have brought forth either by the violence of the pain, or multitude of their young, whereby their strength is consumed, perish likewise; or as *Aristotle* by little Lice which breed in their necks, and as *Pliny* saith, straugle them, as *Scaliger*, eat into them and kill them.

They flye over large Seas, continuing divers dayes together in their flight, and make such a noise with their wings, that they seem to bee Fowls, and shadow the very Sun.

They infest *Italy* oftentimes out of *Africa*, consuming all with their bitings, and with their black, sharp, and burning excrements, and with a sharp slaver, which they in eating let fall out of their mouths, yet are they not poyson, for both the *Parthians* and *Ethiopians* feed of them.

Willichius assigns them a King, and a Monarchy, but *Solomon* denies it, saying, *That they have no King, yet go they forth all by bands*, but though they bee *sine rege & lege*, yet have they a conspiring agreement to do mischief. Proverb. 30. 27.

When they wasted *Gaul* 852. they marched in the aire twenty miles a day in an ordered battel, and formed squadrons, and when they fell on the earth they had their camp; the Commanders with a few went before the Army a dayes journy, as it were to finde out fit places to quarter in, and the very same hour that the fore-runners or harbingers came the day before, the whole Troups came the day after; before the rising of the Sun they stirred not from the place where they settled, but the Sun being risen, they marched, or flew away in their orderly Regiments.

Cuspinian observes the same, in the same Country, in the year 874. but with this difference, that they marched then but four or five miles a day. Cuspinianus

Of Locusts there are sometimes seen such monstrous swarms in *Africa*, that in flying they intercept the Sun beams like a thick cloud. They devoure trees, leaves, fruits, and all green things growing out of the earth. L. Leo hist. of Africa l. 9.

At their departure they leave eggs behinde them, whereof

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other young Locusts are bred, which in the places where they are left, will eat, and consume all things, even to the very bark of trees.

Scaliger exercitat. 192. Their coming is known by the discolouring of the fields long before, for they shine by reflexion.

Julius Obsequens. Before the birth of Christ, about a 170. years, the Pastures of *Italy*, were covered as it were with clouds of Grashoppers, and about *Capua* a hundred years together.

Paulus Orosius contra paganos, l. 5. c. 11. In the Consulship of *Marcus Plautius Hypsæus*, and *Marcus Fulvius Flaccus*, *Africa* scarce breathing from bloody wars, an horrible and extraordinary destruction ensued. For whereas now throughout all *Africa*, infinite multitudes of Locusts were gathered together, and had not onely quite devoured the corn on the ground, and consumed the herbs with part of their roots, and the leaves, and tender boughs of the trees, but had gnawn also the bitter bark, and dry wood, being with a violent and sudden winde hoisted aloft in mighty swarms, and carried along time in the aire, they were at length drowned in the *African* Ocean. Whose loathsome and putrified carkasses being by the waves of the Sea cast up in huge heaps far and wide along the shore, bred an incredible stinking and infectious smell: whereupon followed so general a pestilence of all living creatures that the corrupt bodies of fowls, cattel, and wilde beasts dissolved by the contagion of the aire, augmented the fury of the plague. But how great and extraordinary a death of men there was, I cannot but tremble to report: For in *Numidia* where *Micipsa* was then King, dyed fourscore thousand persons (in the Kingdom of *Massinissa* according to *Eutropius*, if I mistake not, eight hundred thousand.) And upon the Sea-coast next adjoyning to *Carthage* and *Utica*, above two hundred thousand are said to have perished. Yea in the City of *Utica* it self were by this means swept from the face of the earth thirty thousand brave souldiers, which were appointed to bee the Garrison for all *Africa*. And the destruction was so sudden and violent, that out of one gate of *Utica*, in one and the same day, were carried above fifteen hundred dead corpses, of those lusty young gallants.

Georgius Cedrenus hist. Compend. In the Reign of *Basilius* the Emperor, the Eastern parts were consumed by Grashoppers, that the inhabitants were forced

to

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to sell their children, and at last to pass into *Thrace*. But afterwards a vehement winde carried them into the *Hellespont*, where they were drowned and cast up on the sands which they covered, and prodigiously lived again of themselves, and wasted all the Countries adjoyning, and *Thrace*, especially three years together.

In *May* 1350. an innumerable multitude of Grashoppers of an unwonted greatness, and uncertain original, appeared in the Province of *Catana* in *Sicilia*, which consumed Corn, Vineyards, Woods, Gardens, and Trees, both domestick and wilde, and consumed their barks to the very roots every where in one day, and then by a sudden wind were carried into the *Jonian* Sea, and there drowned; but being after cast upon the *Sicilian* shore, caused by their stink a cruell plague in *July* following. Fazell. de rebus Siculis.

Swarms of Grashoppers came out of *Africa* into *Italy*, and also into *France* 1353. and also 1374. causing such a famine and plague, that the third part of the people perished, and they had most of them six wings, and at last were hurried with a violent winde into the Brittish Ocean. Otho Frisingensis.

About *Misnia*, 1543. there were so many Grashoppers that they covered the ground about a cubit thick. Jacobus Elcelius.

In all the Dominions of *Prete Janni* is a very great and horrible Plague, which is an innumerable company of Locusts, which eate and consume all the Corn and Trees, and the number of these Creatures is so great, as it is incredible, and with their multitude they cover the earth, and fill the air in such wise that it is a hard matter to be able to see the Sun; and if the damage which they doe were general through all the Provinces of *Prete Janni*, they would perish with Famine, and it were impossible to inhabite the same, but one year they destroy one Province; sometimes in two or three of these Provinces, and wheresoever they go, the Country remaineth more ruinate and destroyed, than if it had been set on fire. Fran. Alvarez. Ethiop. Hist. cap. 32. & 35.

These Vermine are as great as a great Grashopper, and have yellow wings, we know of their coming a day before, not because we see them, but we know it by the Sun, which sheweth his beams of a yellow colour, which is a signe that they draw near the Country, and the ground becoming yellow, through

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through the light which reverberateth from their wings, whereupon the people become suddenly as dead men, saying, we are undone, for the Locusts come.

During our abode in the Towne of *Barua*, we saw the signe of the Sun, and the shadow of the earth, which was all yellow, whereat the people were half dead for sorrow; the next day, the number of these Vermine which came was incredible, covering four and twenty miles in compass.

At another time we travelled five daies journey, through places wholly wast and destroyed, wherein Millet had been sowne, which had stalks as great as those which we set in our Vineyards, and we saw them all broken and beaten downe, as if a Tempest had been there, and this the Locusts did; the trees were without leaves, and the barks of them were all devoured, and no grass was there to bee seen, for they had eaten up all things, and if we had not carried Victuals with us, we and our cattel had perished.

This Country was all covered with Locusts without wings, and they told us, that those were the seed of them which had eaten up all, and that as soon as their wings were growne, they would seek after the old ones, and the number of them was infinite.

While we abode in a place called *Aquate*, at another time came such an infinite swarme of Locusts, as it is incredible to declare, they began to come about three of the clock in the afternoon, and ceased not till night, and as they came they lighted, and the next day in the morning they began to depart, so that by nine of the clock there was not one of them left, and the trees remained without leaves.

The same day and hour there came another squadron of them, and these left neither bough nor tree unpilled, and so they continued for the space of five daies, and they said they were young ones which went to seek the old ones, and they did the like, where wee saw them that were without wings, and the compass which these Locusts took, was nine miles, wherein was neither leaves, nor barks on the trees.

This Country seemed not to bee burnt up, but rather to bee covered with snow, by reason of the whiteness of the trees, which were all pilled, so that all the Country remained bare.

At such times the people depart from their own Country, so that

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that wee have found all the wayes full of men and women, travelling on foot with their children in their arms, and upon their heads, going into other Countries, where they might finde food, which was a pitiful thing to behold.

Ouce, *Eutropius* makes mention of great Locusts, which were seen not far from the *Roman* Territory, so formidable, and such devourers, that the inhabitants were frighted with the beholding of them, so that wee must conclude that these small creatures have a chief place among Gods Troops and Armies. If *Pharaoh* ask, *Who is the Lord?* Not Angels, not Men, nor yet fierce Lions, and Tygers, but devouring Grashoppers shall bee his challengers and conquerors, and ask, *Who is Pharaoh?* Eutropius l. 4.

They are all females if wee beleeve *Vincentius*, and *Albertus* as the *Scarabees* all males. Great droughts produce them, at least cause a prodigious increase of them, 1553. after five years drought, were great Armies of them; And *Paulus Diaconus* reports that in the tenth year of *Mauritius* the Emperour after a great drought from *January* to *September*, there were infinite multitudes of Locusts, which two years caused a great famine in *Italy*, by consuming corn and fruits, and 1542. an innumerable multitude of Locusts over-spread a great part of *Europe*, at first they wanted wings (being it seems produced by the drought) after they had two, and then four, and having wasted one place, went unto another, leaving a terrible stink after them whersoever they had been, but at last with Autumns cold were destroyed. Vincentius. Cornelius Gemma.

Their extraordinary appearance is (accounted by some) a sign of an approaching plague, sometimes of war, for it is reported, that two Armies passing by *Clermont* into the *Romanick* Territory (a place in *France*) there fought together, where many of of them were killed; when *Clotarius* was about to fight with his son *Chramnus*, whom overcoming, hee caused to be burnt with his wife and children. Hieron. Mercurialis. Georgius Turonensis.

These eaters are usually eaten by the inhabitants of *Arabia deserta*, and of *Lybia*, who esteem their coming as a fortunate boading, for seething and drying them in the Sun, they bruise them to powder, and so eat them. Jo. Leo lib. 9.

And they were the food of *John Baptist* in the Desart, yet there have been some, as *Theophylact* testifies, who understood

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Theophilact. by ἀκρίδας, the buds or tops of certain herbs, or some kinde of wilde fruits, in which number was *Hermolaus Barbarus*, who saith *Chrysostome*, and *Athanasius* before him, were of the same judgement; but *Chrysostome* denies it, and saith a Locust is a small creature, between a flying, and a creeping; of which in the Desarts of *Judea* were great store, they were wont to boyle them in oyle, and they were the food of the poorer sort.

Hom. 2. in Marc.

August in Epist. ad Rom.

Augustine confirms it also, that *John* fed of Locusts. And *Theophilact* witnesseth the same, who doth also interpret the eating of Locusts allegorically, as also *Origen*.

Adamant. Origines, Diodorus, Siculus lib. 3. c. 3. Strabo.

Diodorus saith that the *Acridofagi*, or the *Ethiopians* bordering on the Desart that feed on Grashoppers, are of lower stature than other men, lean, and exceeding black; So also *Strabo*, and adds they are of a very short life, seldome exceeding forty.

Geoprax. l. 16. Solinus poly hist. c. 43.

And *Solinus* also takes notice that the borderers on *Mauritania* in a certain season (the Spring) gather great quantities of Locusts which they salt, and live hereof all the year, but none out-live forty years.

Scaliger exercitat. 192.

The *Parthians* of old fed of them, as *Pliny* reports. And *Scaliger* saith, the *Sirians* and *Persians* eat them before they have wings, namely the young ones.

Hieron. Mercurialis lib. 2. var. lect. 20.

It is to bee observed, that all Grashopper-eaters are of a short life: A learned Physitian enquiring what was the cause the people about the Red-sea are troubled with boyls on their legs and armes, demands if it bee from the aire, or the region, or their food, concludes peremptorily it was from their food. And

Diodorus l. 3. cap. 3.

Diodorus affirms that certain people with frequent eating of Locusts, were not onely short lived, but much anguished, and at last consumed, not onely with boyls (mentioned before) but with a cruel kinde of winged lice, of which one gives a full relation.

Agatharsis.

At the *Vernal equinox* when the South-west-winds blow from an uncertain place, an incredible number of great Locusts are brought, which in flying differ little from birds, but much in the shape of their bodies. With these Locusts salted and otherwayes prepared, the people live, they are excellent for footmanship, but feeding of so dry nourishment, they live not beyond the fortieth year, for then they dye, if not before, a miserable death, for a certain kinde of winged lice is bred in their bodies, like unto

Dogs.

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Dog-flyes, but somewhat lesse. They begin at the breast and belly, and in a short space eat off all the skin of the face. Some of them are like Lepers, and grievously scratch themselves, and the disease still continuing, and these vermine increasing, their humors are spent, and they extreamly tormented, till at length they bee killed and consumed by them.

CHAP. XXXII.

Of American Bees.

IN the West-Indies the Bees are small, about the bigness of Flies, or somewhat greater, and the points of their wings cut overthwart, and have through the middle of the wing, one white line across. They have no sting. Goncalo Fernandez de Oviedo natural y general istoria de la Indias. c. 30.

They make great Hony-combs, and the holes in them are four times greater than the cells of our *European* Bees, although they bee much smaller, their hony is good and wholesome, but it is very dark, like wine being boyled.

In the Island of *Cuzumel*, which is near the coast of *Jucatan*, there are many Hives of Bees like those of *Spain*, but less, and much hony, and wax, the hony is like the *Spanish* hony, but somewhat sharper. Rhamusco vol. terzo delle Indie l. 17. c. 1.

In the Island of *Hispaniola* are no Bees, that ever I saw or heard of. In the firm land are very many, and of many kindes, as well as in the form and shape of the creature, as also in the variety of the taste and colour of the hony, and difference of the wax. Goncalo Fern. de Oviedo della generale & naturale historia della India l. 15. c. 3. apud Rhamus. 3. vol. Purchas Pilg. 3 part l. 5. c. 3.

But though *Oviedo* neither saw nor heard of any, yet are there Bees in *Hispaniola*, but as small as Flies, which sting not; their hives are four times as great as ours, their hony is white.

In the *Indies* are few swarms of Bees (hee understands domestick Bees, which then were rare, but now in many places common. Jo. Acost. l. 4. c. 34.

Their Hony-combes are found in trees, or under the ground, and not in Hives as in *Castile*. The Hony-combes, which I have seen in the Province of *Charcas*, which they call *Chiguanas* are of a gray colour, and have little juice, and are more like unto

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ſweet ſtraw, then to Hony-combes. The Bees are little like, unto Flyes, the hony is ſharp and black, yet in ſome places there is better, and the combs better faſhioned, as in the Province of *Tucuman* in *Chille*, and in *Carthagene*.

Cronica del Peru per Pedro de Cieca, c. 25

In *Peru*, eſpecially about the City *Cartago*, are many Bees, which breed in hollow Trees, and make as good Hony as the Bees in *Spaine*; there is one ſort of Bees not much greater than Gnats, theſe ſtop up the hole, or paſſage into the cavity of the tree, and by a pipe of waxe as great as the middle finger, goe in and out to their labours, their Hony is thin and ſomewhat ſharp, they get uſually about a quart of hony out of a tree.

There is another ſort of Bees which are ſomewhat greater, and black (for the former are white) the entrance into the tree where they work is made up (except a paſſage for them) with waxe, and ſome other mixture, whereby it is harder than a ſtone, their hony is without compariſon better than the former, and a Tree will afford uſually a gallon, and ſometimes more.

There is another ſort of Bees which are greater than the *Spaniſh* Bees, but none of them ſting, but when they finde that any goe about to plunder them, they will charge upon him that cuts the tree, and hang about his hair and beard; theſe greater Bees yeeld uſually three gallons out of a tree, and it is farre better hony than any of the former.

Ant. D'Herrera Hiſtoria general de los hechos, &c. decad. 5. lib. 10. c. 10.

In the Province of *Guayaquil*, which is not farre from *Quito*, they breed in Trees, and are not much greater than Flies, the Waxe and the Hony which they gather is red, and although it hath a good taſte, yet is it not like to the Hony of *Caſtile*.

Maximil. Tranſilvanus in Epiſt. ad Epiſcop. ſaliſburg.

Near the Rivers of *Vaſſes* and *Plate*, the Bees are not like ours, being not greater than the ſmall Flies wherewith wee are troubled in Summer; they work in Trees, and make larger combes than ours, the extremities of their wings are blunt, as if they were cut (*Oviedo* and *Thevet* confirm it) or bitten off, and have in the middle of them a croſs ſpot drawing towards white, without ſtings, their wax is as black as pitch. The hony generally of the Bees, of the new world, candies not, but is alwayes liquid like oyl.

Huldrichus Smidel.

The Country of *Mackaſies* 372. *Germane* miles from the City of *Aſſumption* in the River of *Plate* (near *Peru*) is ſo abundant

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abundant in Bees, that you shall scarce open any tree with a hatchet, where will not run out five or six measures of pure hony; the Bees that make it are very little, and without stings.

Aldrovandus citing *Hispanus* saith, that in the Isle of *Cumana*, the swarms hang on the Trees, and flow down with hony. Petrus Hispanus.

In *Tymona*, not far from *Quito*, the *Indians* make many conserves of hony, which is somewhat plentifull with them, and send them to sell to the Countries round about them. A. d'Herrera de las Indias occid decad. 6. l. 3. c. 16. Linscoten. l. 3.

The *Indians* of *Cumana*, although their Country bee well replenished, with good bread, corn, fruits, and all kinde of fish in great abundance, yet eat Bees, Lice, Spiders, *&c.*

The *Brasilian* Bees are very unlike to ours, and differ not much from the little black flesh Flye, which annoy us in Summer, and make their combs usually in hollow trees; they call the hony *Yrá*, which they eat as wee do, their wax is as black as pitch, which they call *Yetic*, they use it not for candles, as wee do, but to stop their great Canes, wherein they keep their feathers that they bee not eaten by a kinde of Butter-flye, which they call *Araveis*. They come in multitudes to the fire, like Crickets, where they eat whatsoever they finde, especially they gnaw the upper part of leathern doublets, and shooes. If wee negligently reserved hens, or other food, in the morning, wee should have onely bones. Hist. Navigat. in Brasil. Lerius.

Several sorts of Bees in *Brasile*: Yeatee is the smallest of all the Bees that ever I have seen in the Country, and is in making much like a gnat, but of a yellowish colour, and hath commonly her hony in the hollow of a tree, either at the root, or not above three or four foot from it; it stingeth not, and where they enter, they make a pipe of yellowish wax about four inches long, with the mouth of it, like to the mouth of a Trumpet, the combs are joyned together like clusters of Nuts, and their hony is an excellent balsome, for I have had experience of it my self for the curing of very dangerous green wounds. Mr. Joh. Stanes my friend, and neighbour who lived many years in Brasil.

Zellab, and *Zellobson* are the two chief sorts of Bees, and sting not at all; the lesser is so like our Bees here in *England*, that I think I should not know one from the other, the other is bigger, but yet much of the same colour; they have honey in abundance, and the further up into the Country the more plenty; I have seen

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seen more taken out of a tree at a time than a Firkin will hold, as clear as running water, but if drunken, it is exceeding strong, and causeth thirst, it must bee taken very moderately. They build most commonly in some hollow bough of the tree, or else in the body of a tree, called by the *Indians Keravvah*, they have their hony in clusters of balls, much like our Humble-Bees, and their young ones in combes which lye compassed with the balls of hony, and in the balls you shall find some hony as it is new brought in, very thick and dry, but taste it, it is very soure, and so some more near ripe, but not fit to eat, untill it come to be clear as water; you may see in the balls or clusters, the colour of the blossome from whence it was gathered.

There are two other sorts of Bees that are but small, and of a black colour, one sort stingeth not, but the other doth; they are very like each to other, and build about the middle of the tree, the hony of them both is much alike, but not so good as the former, being of a darker colour, and their combes are in manner with the former, and they are called *Erete*.

There are other sorts of black Bees called *Erepnoh* and *Erepnohuson*, they both sting, and intangle much in a mans hair, the one buildeth in the hollow of a tree, and the other in the branches, that which buildeth in the hollow of a tree, will not suffer any man to come within two or three rods of the tree where they are.

I never saw any of their hony, but the natives have told me, that they have indifferent store, but it is very laxative, and breedeth diseases in the eater, as bloody flixes, *&c.* the other buildeth in the branches, and make their house of dirt, bigger than one of our large Bee-hives, and enter at the middle of it, their young are as hornets, in little cells or chambers, and from thence between several layers of dirt, they have their hony, which is not very much, but is binding.

There is another small sort of Bees, and they either build in fields, where there are but small store of trees, and they low ones; they are of an ashy colour, and build in the branches like *Erepnohs*, but their nest is like a film, or skin, and of the colour of the Bee, they have not much hony, and have a thin flat combe, or else they build among the Tobacoes, and from thence they take their name, being called *Tobacous*.

In

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In *Hispaniola* their Wasps are greater than ours, and sting more dangerously. There are many of them, and they very poysonfull, they cause great pain when they sting, they are like those of *Castile*, but somewhat greater, and under their wings above the yellow towards the end, have a little Lion-like colour. More fully in another place, hee saith, There are many Wasps in the West-Indies. They are very hurtfull and venemous, and their stinging is without comparison, more painfull than the stinging of *Spanish* Wasps, they are almost of the same colour, but greater, and the yellow of them is more red, and their wings are spotted with a black colour, and the points of them reddish of a burnt colour.

Purchas Pilg. 3. part. l. 5. c. 3. Oviedo l. 15. c. 3.

Oviedo. Sumario de la natural y general istoria de las Indias. c. 49.

They make very great nests, and the clusters of their combs are as large as the combs that the Bees make in *Spain*, but they are dry and white inclining to russet, they have nothing in them but their young: They breed in trees, and also in the roofs and timbers of houses.

There are many Hornets in *Hispaniola*, and their stinging more torments, than the stinging of their Wasps.

Rhamusio l. 15. c. 3. torzo Vol. Mr. John Stanes.

There are two sorts of Hornets in *Brasile*, which the *Indians* call *Moribundas*, the one black, and the other much of the colour of them wee have here in *England*, but the black is bigger and longer, and stingeth violently. They make their house like a Canopy, or much like to the top of a Bee-hive, and they are fastened to a bough of a very high tree; so that they seldome offend any man, unless they first offend them; but your herdsmen are sometimes much vexed with them, in driving their cattel, they are unruly many times, they run among some Sippoes or Withes that run into the tree, whereby they disturb them, and then they come down to the terror of men and beasts. Their house is open below, so that you may stand under them, and see them go into a comb that lyeth flat at the bottome, much like to our Hony-comb.

FINIS.

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Books lately Printed for *Thomas Parkhurſt*, at the Sign of the Three Crowns, over againſt the Great Conduit, at the lower end of Cheapſide.

A Learned Commentary, or Expoſition upon the firſt Chapter of the ſecond Epiſtle to the *Corinthians*, by Dr. *Richard Sibbs*, publiſhed for publick good by *Thomas Manton*, Folio.

There is newly come forth Mr. *William Fenner* his Continuation of Chriſts Alarm to Drowſie Saints, with a Treatiſe of Effectual Calling: The Killing Power of the Law: The Spiritual Watch: New Birth: A Chriſtians ingrafting into Chriſt: A Treatiſe on the Sabbath, which were never before printed, bound in one Volume, *Fol.* and may bee had alone of them that have his other Works, as well as bound with all his former Works, which are now newly Printed in the ſame Volume with this.

Truth brought to light, and diſcovered by time, or an Hiſtorical Narration of the firſt fourteen years of King *James*, in 4°.

The Journal or Diary of a thankful Chriſtian, wherein is contained Directions, for the right method of keeping and uſing, according to the Rules of Practiſe; a Day-book of National and publick, perſonal and private paſſages of Gods Providence, to help Chriſtians to thankfulneſs, and experience. By *John Beadle*, Miniſter of the Goſpel at *Barſtone* in *Eſſex*, large 8°.

Mr. *Robinſons* Chriſtians Armor in large 8°.

Book of Emblems, with Latine and Engliſh verſes made upon (*Lights*) by *Robert Farly*, ſmall 8°.

Grace to the Humble, as preparation to the Sacrament in five Sermons by Dr. *John Preſton*.

Picturæ Loquentes, or Pictures drawn forth into Characters, 12°.

A moſt Excellent Treatiſe containing the way to ſeek Hea-

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vens Glory, to flye Earths vanity, to fear Hells horror, with godly Prayers, and the Bell-mans summons, 12°.

Johnsons Essayes expressed in sundry Exquisite Fancies.

The one thing necessary; By Mr. *Thomas Watson*, Minister of *Stephens Walbrook*, 8°.

Sion in the House of Mourning, because of Sin and Suffering, being an Exposition on the fifth Chapter of the *Lamentations*, by D.S. Pastor of *Upingham*, in the County of *Rutland*.

Groans of the Spirit, or the Trial of the Truth of Prayer.

A Handkercher for Parents Wet-eyes, upon the death of their children or friends.

The Dead Saint speaking to Saints and Sinners living, in several Treatises, *viz.* On 2 *Sam.* 24. 10. On *Cant.* 4. 9 On *John* 7. 15. On *John* 1. 50. On *Isa.* 58. 2. On *Exod.* 15. 11. Never-published before. By *Samuel Bolton*, D.D. late Master of *Christs Colledge* in *Cambridge*.

Four profitable Treatises very usefull for Christian practice, *viz.* The Killing Power of the Law: The Spiritual Watch: The New Birth: Of the Sabbath. By the Reverend *William Fenner*, late Minister of *Rochford* in *Essex*.

Peoples Need of a Living Pastor, at the Funeral of Mr. *John Frost*, M.A. by Mr. *Zach. Crofton*.

A Treatise against the Toleration of all Religions. By Mr. *Thomas Edwards*.

Chatechizing Gods Ordinance in sundry Sermons, by Mr. *Zachary Crofton*, Minister of *Buttolphs Aldgate London*, the second Edition, corrected and augmented.

A Coppy-Book methodized and ingraven, by *Thomas Crosse*, wherein fair Writing is expresst, by which one may learn to write of himself, that can but read.

Dr. *Stoughtons* thirteen Sermons containing the form of Sound words, and some other Treatises.

The Godly Mans Ark, or City of Refuge, in the day of his Distress, discovered in divers Sermons, the first of which was preached at the Funeral of Mrs. *Elizabeth Moore*. Whereunto is annexed Mrs. *Elizabeth Moores* Evidences for Heaven, composed and collected by her in the time of her health,

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for her comfort in the time of sickness; By *Ed. Calamy*, B. D. and Pastor of the Church at *Aldermanbury*.

Enchiridion Judicum, or *Jehosaphats* Charge to his Judges, opened in a Sermon before the Right Honourable the Judges, and the Right Worshipful, the Sheriffe of the County Palatine of *Lancaster*.

Together with *Catastrophe Magnatum*, or King *Davids* Lamentation, at Prince *Abners* Incineration. In a Sermon meditated on the Fall, and preached at the Funeral of the Right Worshipful *John Atherton* of *Atherton*, Esq; High-Sheriffe of the County Palatine of *Lancaster*. By *John Livesey* Minister of the Gospel at *Atherton*.

There are going to the Press some new Peeces of Mr. *William Fenners*, late of *Rotchford* in *Essex*, never yet printed, preserved by a special Providence, one of which is a Second Part of his Wilful Impenitency; being five Sermons more that he preached upon the 18. of *Ezekiel*, and the 32. verse.

FINIS.

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Mr. Purchas His Theatre of Politicall Flying-Insects.

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THE
Second Part,
BEING
Meditations and *Obſervations*,
Theologicall, and *Morall*,
Upon the Nature
OF
BEES.

By
Samuell Purchas Maſter of Arts, and Paſtour of *Sutton* in *Eſſex*.

LONDON;
Printed by *M. S.* for *Thomas Parkhurſt*, and are to be ſould at his Shop, at the ſigne of the *three Crownes*, over againſt the *Great Conduit* at the lower end of *Cheap-ſide*.
1657.

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THE SECOND PART:

Meditations and Obſervations, Theologicall and Morall, in three Centries, upon the nature of Bees.

The firſt Centry.

THere is no creature but may teach a good ſoule one ſtep towards his Creator. Wee ought therefore to make a ſpirituall uſe of things naturall, and the things of this preſent life, by them raiſing up our mindes to heavenly meditations, and in an holy alchimie (as one ſaith) draw gold out of lead, heaven out of earth, grace out of nature. The world is a glaſſe wherein we may contemplate the eternall power and majeſtie of God; For the inviſible things of him from the creation of the world are clearely ſeene, being underſtood by the things that are made, even his eternall power and God-head. It is that great booke of ſo large a character, that a man may run and read it, yea even the ſimpleſt man that cannot read, may yet ſpell out of this booke that there is a God. Every ſhepheard hath this Calender, and every ploughman this *A, B, C.* What the *French* Poet divinely ſung is thus as ſweetly Engliſhed. Rom. 1. 20. *J. Silveſter.*

The worlds a ſchoole wherein a generall ſtory,
God alwayes reads dumb lectures of his glory.

A ſhame therefore for us to have earthly hearts voyd of ſpi-

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rituall meditation, when every creature every where yeelds us matter enough. All of us can uſe the creatures carnally, and ſo can beaſts; the ſpirituall uſe is rare.

II.

God humbles us with ignorance in many things, not only divine but naturall and in common uſe, as in the Loadſtones drawing of iron. In that little fiſh the *Remora*, the ſtay-ſhip that will arreſt a ſhip when it is going full ſaile In the nature of Bees how blind are we? notwithſtanding all our obſervation and labour. In the production and continuance of the Queene Bee, in the generation of other Bees, and generally in the formes of all things. A juſt puniſhment of our pride, in affecting and aſpiring to knowledge too high for us. And if there be in nature ſuch ſecrets, what then in grace? Let us not be too curious in prying into Gods arke, leaſt we ſmart like the flie fluttering about the candle, for God is a conſuming fire to thoſe that will be ſporting themſelves in the quirks of their wit about his ſacred myſteries. Let us waite till the life to come, and the veile ſhall be taken from our eyes, in the meane time humble ignorance is better then proud curioſitie.

Dr. *Dike* Evangel. hiſtories.

III.

Many have troubled themſelves and others to diſcover the ſeverall kinds of working Bees, whereas of working Bees in theſe parts of the world, there is but one ſort. And all Bees agree, if not in a juſt magnitude, colour, and proportion, yet certainly, in their operations, naturall diſpoſitions and inclinations; So that our Bees and Bees in *Spaine* and other parts make all their combes with like hexangle cels, and are all induſtrious to gather honey, although in ſome parts according to the Climate they are more retarded from working then in others.

And all the Saints that are diſperſed throughout the whole world, have the ſame nature in them (although there be externall differences), they have the ſame ſpirit in them, though they be never ſo remote one from another, & never ſaw one anothers face, yet may they know one anothers mindes, for one mind dwels

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dwels in them, And when one mind dwels in diverſe, they be of the ſame diſpoſition, one nature is common to them all.

IV.

Waſpes labour not as the Bees to furniſh themſelves with proviſion for the future, but for the moſt part live on ſpoyle and rapine; and about this are as indefatigably diligent and earneſt early and late, as the painfull Bees in their profitable labours. So it is with many in the State, who in unlawfull callings, and in the maintenance of their unlawfull trades doe take as much paines, nay more then ſome in lawfull. *Demetrius* his example ſhewes it, *Act.* 19 and the Proverb is, *The belly hath no eares.*

V.

Many creatures have retireing places; the Bees when winter, night, or ſtormes approach, they have their hives or dwellings in trees, they have their hideing places. Onely a wicked careleſſe man that hath not acquainted himſelfe with God, when troubles come he hath no hideing place, nor no abiding place, but lies open to the ſtorme of Gods diſpleaſure; therefore he is ſurprized with feares and cares, and pulled in pieces with diſtractions: he is a Meteor that hangs in the clouds, he cannot tell which way to fall. Dr. *Sibbs*, The poore mans riches.

VI.

Bees are laborious and induſtrious in their youth, and yet diſpenſe not with themſelves to be idle in their age, but as their skill is increaſed by dayly practiſe, ſo doe they with inceſſant diligence follow their buſineſſe, and that in the moſt difficult and laborious taskes, being more early at their worke then the younger; and in chilling ayers when they dare not venture forth, will they be abroad, nay when they are weake, and have over-ſpent bodies and ragged winges, yet will they be abroad, although they miſcarry in their labours. How different is the practice of the men of the world? where a new broome ſweepes

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Dr. *Dike*, Evangel. Hiſtories.

cleane. Their firſt beginnings are goodly and glorious, but the end is not anſwerable. Many are hot profeſſors and zealous in their younger yeares, but grow key-cold in their elder yeares; therefore *Eccleſ.* 7. *The end is better then the beginning.* This deceitfulneſſe of men is alſo in their ſpeciall callings. Many good Magiſtrates at the firſt, as *Saul*; and Miniſters, as *Judas*; but they are beſt at firſt, like *Nebuchadnezzars* image, a golden head, and iron and clayie feete.

VII.

Dr. *Preſton*, Gods All ſufficiency.

If a man did finde an all-ſufficiency in God, he would never turne from him, nor ſeeke to the creature; Even as the Bee, if it did finde honey enough in one flower, would not haſten to another; but becauſe it doth not, it goes from flower to flower. And ſo is the nature of man, as *Solomon* expreſſeth it, ſaying, *that he haſtened to outward things*, that is, when he fell upon one, he found not enough in it, he made haſt to another, and to another. So the nature of man if it did find ſweetneſſe and comfort and contentment enough in God, it would not turne from him to the creature, but becauſe in his ſenſe the object is too narrow, there is ſomewhat he would have more, he lookes over the Pale as it were, he ſeeth ſomething he deſireth, and that cauſeth him to ſtep out.

VIII.

Bees will endure Waſpes abroad, or in other hives, but never willingly in their owne; for antipathie is a perpetuall enmitie. If the force of antipathie prevaile ſo farre to make an irreconcileable hatred, as great ſhould be our hatred againſt ſinners and Gods diſhonour. It is fearefull when we can eaſily comport with the wicked and digeſt their company and ſocietie.

IX.

Bees when they are weary of the drones, having no further uſe of them; and fearing prejudice and future want by their gourmandizing; at firſt ſhew their diſlike by moleſting and trou-

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troubling of them, but when this will not cause them to depart, nor yet give over their wonted courses, then with courage and confidence doe they set upon them, confront, kill, and slay them. Teaching Christians according to their places, that it is not enough to dislike the doings and practises of the wicked, but they must, having reproved them, confront & oppose them, nay strive, contend, and warre with them. Many faintly and coldly shew their dislike against wicked men, as *Eli* against his wicked sonnes: But this is (to use *Sophocles* his comparison) as if in a festered wound or sore, the Chirurgion should only blow upon it with his mouth, whereas there must be cutting, laneing, searching, burning, and the greatest violence that can be. *Asa* was herein famous for not enduring his owne mother in her Idolatry. 2 *Chro.* 15. 16.

X.

If the Queene Bee in a swarme, following after the company (but because of the weakenesse of her wings, or tendernesse of her constitution, being never abroad before, and so not able at first to endure the cooler ayre) fall downe; they that be her present attendants, and saw her fall, stoop with her, encircle her, (and if she rise not and retrne to the hive, or goe to the maine body of the swarme, (setled perhaps a little distance with longing and trembling expectation of her presence) stay with her and starve with her rather then forsake her, contenting themselves with the condition of their Leader. And shall afflictions be the way that the Master enters into glory, and the members find fault with them? shall the head be crowned with thornes, and the members wrapped in softnesse? this is an unhandsome indecency, and a disunion too neare an antipathie; who ever will be Christs Disciple, must take up his crosse, deny himselfe, his owne fonder appetites, and trace his Masters foot-steps; though marked out with blood that he shed for our redemption; for he that will save his life shall loose it, and he that will loose it shall save it to eternitie.

XI.

Put a drop of honey into a bottle of Vinegar, it is as sharpe as

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Dr. T. Tailor, Parable of the Sower.

as before: so drop in the sweet word of God into such an heart as is sowred with the world, the taste is not changed, the word is not over-mastered.

XII.

Mr. *Cotton* expos. on the first Epist of *Joh.* c.2.v.17.

Bees for the most part feed on honey, which over-liberally eaten turnes to choller, no wonder then if they be fiery furious and chollerick creatures: There is a power in meates to assimilate those that eate them, what we feed on we are oft like unto: feed on grosse meates, your spirits will be more grosse and dull, feed on light meates, your spirits will be more quicke and agill: so if a man feedes on the world, he can relish nothing but the world, his spirit is made carnall and stupid and worldly, and can rise no higher, therefore when *Solomon* gave himselfe to seeke

Eccles. 2. 3.

pleasures, to try what was in them, though he did not neglect wisdome, as *Eccles.* 1.8. yet he found by experience, deale as wisely as he could, in the end they did so stupifie him, that he

1 Kings 11.4.

was led away by them to Idolatry. Then is a man become stupid when he is serious about trifles, and trifling about serious things: by pursuit of these his judgement was quicke in earthly matters, but in matters of religion, he began to grow very weak and ignorant; how much more then they that wholly give themselves to the lusts and pleasures of the world?

XIII.

Bees in violent frosts are torpid and stirre not, especially in the Northerne regions, where they are almost all winter, if not in a dead, yet a very deep sleepe, but the mighty power of God in the returne of the spring revives and quickens them. And it is not a lesse almighty power that keepes the life of grace in the greatest falls and temptations of the Saints, that keepes life in *David* and *Peter*, that it should quicken and revive againe when the Sun of righteousnesse with comforting beames refresheth and warmeth them.

XIV.

Bees are patient and harmlesse creatures, and seldome unprovoked

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provoked prove injurious; but he that shall often stand before the hives in the heate of the day, when they returne home with their labours, may too late repent his temeritie and fool-hardinesse. Lawfull libertie used to the full is exceeding dangerous, he that will take all the libertie he may, will sometimes take that he may not. It is not safe at all times to goe into the high Priests hall. We are oft mistaken in our judgements concerning the lawfullnesse or unlawfullnesse of actions; He that will doe all that he thinkes he may lawfully doe, if he increase in giving himselfe libertie, will quickly arrive at doeing things unlawfull. He that because a man may be innocently angry, will never refraine his passion, in a little time will be intemperate in his anger, and mistake both his object and the degree. Thus facetiousnesse and urbanitie intertained with an open hand, will turne into jestings that are uncomely. If you will be secure, remove your tent, dwell further off, God hath given us more libertie then we may safely use. Dr. *J. Taylor*, The great Exemplar.

XV.

Let Bees be kept close and imprisoned in their hives, though they have ease and ayre in abundance, yet they will not be contented, but still complaine and murmer, gnawing and eating away the stopping and impediments, that they may apply themselves to their naturall and delightfull labours: so a river let it be dammed and stopt up, yet if the course of it be naturall to goe downwards, at length it will over-beare the damme and run over. Let water that is sweete be made brackish, by the overflowing of salt water, yet because naturally it is sweete, it will in time worke out the saltnesse. Here we have a picture of every mans nature, looke what the constant streame of his disposition is, that which is naturall to him, though he may be pent up and hindred from the practice of it for a time, yet will he breake through all impediments that he may be at it, though some temptations may forcibly breake in, and barre and stop up for a time his walking heaven-ward, yet will he never be at rest, untill he hath removed them, and got into his former course againe; whereas if a wicked man step into a good course by some tryall, or good education, &c. yet long he will not hold

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hold in it, he will breake through the impediment, becauſe his naturall diſpoſition, the ſtreame of his heart runs another way.

XVI.

Bees will not be without a Leader, for in all they act they receive directions from the Queene Bee. As the governour of a ſhip, he hath his hand (ſometimes) to the ſterrage, and his eye to the Pole-ſtarre to be directed by that; ſo is the life of a Chriſtian, he muſt alwayes be doing that, that God preſcribes him, and he muſt have his eye to the ſtarre to be guided in his courſe by Gods direction: he that doth not this knowes not what it is to truſt in God.

Dr. *Sibbs.*

XVII.

As the Beare dares hardly intermeddle with his deſired honey, for feare of the ſtinging of the Bees; ſo ſome men dare not commit ſinne, for feare either of the lawes of men, or in ſlaviſh feare of hell, or the prologue to it, terror of conſcience, yet hugges it in his heart, embraceth it in the armes of his affection, ſuffers it to reigne in his heart, and to take up his thoughts as by a Commiſſion, continually contemplating thereon.

XVIII.

The Drones labour not, but altogether intend their paſſe-time and recreation, and then returne into the hive, and fill themſelves with the pureſt honey, whereby they quickly grow foggie, and either cannot when they goe forth returne into the hive, and ſo periſh abroad, or after a while are ejected or ſlaine by the Bees. And ſuch ſporting Drones the world is full of, who plunge themſelves over head and eares in courſes of pleaſure, wherein they unworthily waſt the fat and marrow of deare and precious time, the flower of their age, the ſtrength of their bodies, emaſculate and melt the vigor of their ſpirits into effeminate ſenſualitie and luſt, drowne the faire and goodly hopes of their education, the improvement of their parts in froth and folly, as though they were placed upon earth, as Leviathan in the

Mr. *Bolton*, Direct. for walking with God.

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the Sea, only to take their ſport and paſſe-time therein. Lovers they are of pleaſure, and having their fooles paradiſe here, muſt therefore in the equity of a juſt and holy proportion, with the rich man looke for their payment and torment hereafter.

XIX.

Bees will not continue well nor long without a Leader, nor will they endure diverſe or more then one. Therefore in the union of ſwarmes, and in caſtlings, where ſometimes many goe forth, yet will the Bees dethrone and deſtroy all but one, and untill it be effected are in a diſcontented tumult and hurly burly, yea often in a civill warre, and if it fall out the parts to be ſomewhat equall, thereby is occaſioned (ſometimes) a totall ruine and deſtruction. For looke how farre any thing goes from unitie, ſo neare it comes to periſhing, and any where the more peace and unitie, the more ſafety and ſecurity. And if in the little compaſſe of a hive, there is ſuch need of a governour and unitie, much more in the great hive of the world. And this governour muſt needs be God, for by men or Angells it cannot be governed. The preſervation of every thing is in the unitie of it; and therefore you ſee any thing that is divided, that diviſion is the diſſolution of it, as when the ſoule is divided from the body, and when the body is divided from it ſelfe; ſo likewiſe in a family or Common-wealth, much more in the world. If there were not one fountaine, there would be different ſtreames, and if there were diverſe principles of things, there would be a ſwarving and diviſion in the nature and order of things, and ſo not an unitie, and ſo by conſequence it would be the deſtruction of the whole. Of neceſſitie therefore there muſt be a governour, and this governour muſt be one, and that one is God, who guides every creature under the Sunne, even the ſmalleſt of the creatures, and orders and directs them to their ſeverall ends and buſineſſes, to which he hath appointed them.

XX.

Bees being little and light creatures, are much agitated and diſturbed, with tempeſtuous and ſtormy winds, which becauſe

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they cannot altogether prevent, they by a naturall sagacitie and providence doe arme and enable themselves against them. The Bees of *Candie* (as it is reported) poise themselves with smaller pibbles which they carry in their feete, but our Bees to helpe themselves flie very low neare to the surface of the earth, and for the most part under the Lee-side of a hedge, whereby the violence of the wind is much checkt and broken. For as a Ship that is well furnished with tackle and sailes, that may give the motion and advance the swiftnesse of it; yet if it hath not ballast in it, or weight in it to make it goe steddy, or a Lee-shore, where (by the height of the bankes) the violence of the wind is somewhat broken, it is up and downe tossed alwayes, and the more sailes the more danger and hazzard. So Christians in their voyage to the new *Jerusalem*, must not only have the wings of love, but the ballast of feare descending in a low flight to make them goe steddy. We must not have love only but feare, (whereby we flie low) least otherwise we move but wantonly, skipping and danceing by fits and by spurts in good wayes, and keepe not any constant course in our holy voyage. The eminency and excellency, the security and safety of a Christian conversation ariseth from a mixture of feare and love; for as the purest white and faireſt red mixed together, make the beautie of the face in the body: so the mixture of feare and love make the beautie of the affection in the soule, feare mixed with love, for it must not goe alone. Feare though it be apt to make us carefull and cautious, carefull how to please God; and cautious, fearefull to offend him, yet if it be alone will precipitate us into despaire, or into the forlorne hope It must be tempered therefore with love that we looke not only upon the greatnesse, but on the goodnesse and sweetnesse of God, that as we are affected with the prospect of the one, *viz.* his greatnesse, with an affection of holy humble feare, and lowly awe and reverence of him, so that that may not beate us downe and overthrow us by despaire, we must keep up (advanced by the wings of love) looking upon his sweetnesse and his goodnesse. If we thinke on nothing but love, fix our eyes on nothing but goodnesse and sweetnesse in God, we shall be ready to charge our sinnes on his backe in our presumption of his goodnesse, building on his mercy inordinatly, and so presume to doe any thing.

Plutarch. De solertia animal.

Dr. Stoughton, Rghteous mans plea to true happinesse.

I say,

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I say, love alone would be too wanton except it be poised and ballanced with a holy feare and awe and reverence of God.

XXI.

If a swarme be checked and stunted with bad weather presently after it is hived, or if it be small, or very late in the yeare, the Bees will be carelesly desperate, and gather nothing to purpose, for they are out of hope to get enough for their winters provision and maintenance, and as good never a whit as never the better. Good is the Loadstone of all endeavours, a man will not labour for nothing, therefore despaire killes a mans labours, and plucks up the roote of all his endeavours; if there be any good present, hope makes us labour to increase it; if there be any good to come, hope labours to attaine it: but good there must be at least in hope and expectation, or else all endeavours will flag and wither away to nothing. Mr. *Hooker*, Soules preparation for Christ.

XXII.

The feild wherein Bees feed, is no whit the barer for their biting, when they have tooke their full repast of flowers or grasse, the Oxe may feede, the sheepe fat on their reversions. The reason is because those little Chymists distill only the refined part of the flower, leaving the grosser substance thereof. So ejaculations bind not men to any bodily observance, only busie the spirituall halfe, which maketh consistent with the prosecution of any other employment. Mr. *Fullers* Med.

XXIII.

Many observing the Bees flying into their hive, suppose them best furnished, that they see goe home laden on their thighs, and thinke the other idle that they see carry nothing; whereas though the former be well busied, yet oft times the other are better who are more deeply more richly laden, being full fraighted with honey. Gods servants in this life are more in substance then in shew, when they fast, they anoynt their faces; and when they give almes let not their right hand know, what their

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left hand doth. Good actions are not alwayes rewarded here, and therefore in vaine doe men muster and set them out upon beadroles in this life: labour to get the approbation of God, and so doe good that thy conscience may be well stored in Gods sight, who seing thee in secret may reward thee openly, and make thy light shine cleare as the perfect day. The wise Virgins have their oyle in their vessels, that is, have their holinesse and beautie hidden, and their actions only to be taken notice of by God.

Mr. *Johnston*, Parable of the Virgins.

XXIV.

Bees, if they be not disturbed or provoked, are seldome troublesome or offensive, especially in a remote distance from their hives, but molest or disquiet them at home, then they will furiously invade you, and admit of no termes of peace, but die or prevaile in the ruine of that man or creature that offends them. There are many men in the world, that seeme of excellent natures, quiet spirits, while they are not stirred or moved, but if they be once provoked, the latent embers be uncovered, then they are implacably mischievous.

XXV.

Bees if they fall into the water and be drowned, or be chilled and dead with cold (if it be lesse then the space of a day) if you lay them in the warme Sunne, or bring them neare a fire, they will recover life and revive againe, and doe well. The affections of Gods children are apt to grow dull and languish, if not to be chilled by earthly objects; for our hearts are ponderous, *Multum trahit de terra, de carne multum*, it weighs downward, as the weights of a clocke move downward continually, and if they be once at the ground, the clock is silent, they must pull it up againe every twelve houres, or in such a certaine compasse they must wind them up. And so in this case, there must be courses of winding up holy affections: if the fire be gone, the fire be out, revive it, kindle it againe from heaven, reinforce, chafe and warme your selves by the fire of prayer and other holy duties. When the fire on the Altar was extinguished, it

Dr. *Stoughton*, Righteous mans plea to true happinesse.

was

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was unlawfull to have it kindled but only by the meanes of heaven. It muſt be the fire of heaven, not any other fire that muſt revive us. We muſt oft be renewing of our holy affections to keepe them vigorous and lively. We muſt frequently excite and ſtirre up our ſelves, when we begin to faynt we muſt rub and chafe our affections, and eſpecially ſpread our chilled ſpirits before the Sunne of righteouſneſſe, that he may with the heate and healing of his wings revive and quicken us. Mal. 4. 2.

XXVI.

The little worme or potentiall Bee, after a ſhort life of a few weekes, ſtirres no more, feeds no more, but lies dead and entombed, in the cell wherein it was bred: but waite with patience a ſcore of dayes, and you ſhall ſee it revive, and appeare a farre more noble creature then it was before. What is this, but an embleme of the reſurrection? *Aarons* rod which was a drie and withered ſtick, in a night buds and bloſſomes, and brings forth ripe Almonds. For to every thing there is a ſeaſon, and a time to every purpoſe under heaven. A time to die, and a time to riſe againe. Eccleſ. 3. 1.

XXVII.

Bees can with eaſe and facility dart in their ſtings, but they have no power to extract or draw them out againe; hurt they can, helpe or eaſe they cannot. We are all naturally wiſe to doe evill, but to doe good we have no underſtanding. We are all as ſpring-locks, ſhut we can of our ſelves, but not open, for our naturall powers (as the Schooles ſpeake) are become *naturales impotentiæ*. And howſoever the ſword of the Lord, and the ſword of *Gideon* may goe together, yet the hand of *Gideon*, or the ſword in his hand, or the edge on his ſword, is not able to pierce, unleſſe God give power, *non enim tam agimus quam a deo agimur*, ſaith *Zanchie*; for man is not ſo properly ſaid to doe good, as to be compelled to doe it by the good Spirit of God. *Aquin.* *Zanch.*

XXVIII.

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XXVIII.

Robbing Bees will desperately adventure to spoyle and plunder their neighbours. But if they find centinels before the ports to question them, and a strong guard at the gates to oppose them, and when they have with danger and difficultie passed through these, numerous forses within stoutly charging the first assailants with their ruine and destruction. The survivors will be weary and wary, doubtfull and fearfull further to prosecute their treacherous designes. For even naturally all brute creatures avoyd that place where they are sensible by a token that their fellowes have miscarried. But how great the neglect of Gods judgements among men is appeares: perhaps at first they are deeply affected with them, but yet as a pang it is quickly overpast, and as newes it soone growes out of date. *Pharaoh* was no sooner quitted from one plague, but presently his heart was hardened to draw on another. The *Israelites* that were so affected, flighted and frighted at the horrible end of *Corah* and his complices, even the morrow after fall on *Moses* and *Aaron*, and upbraid them for the losse of the people of God. Many looke on others judgements, as furnished with a superseders from all arrests, and argue from their punishment how they have deserved, without the least reflex upon their owne mutable condition.

Dr. *Prideaux*, *Higgaion* and *Seloh*.

XXIX.

As Bees are industrious to gather, so what they diligently get, they doe not carelesly and at randome disperse about the hive, but discreetly and orderly, beginning at the top and so downwards, dispose it in their waxen cabinets, and as soone as they be full of honey close them fast with a waxen lock, both to prevent robbers, and also to necessitate themselves to further labour as long as the season of gathering continues. Many heare, but the word heard profits them not, because they are careless to treasure up the truths delivered, they quickly forget; such are like unto a man who beholds his naturall face in a glasse, and goeth his way, and forgetteth what manner of man he

James 1. 23.

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he was. But would we thrive under the meanes, we must when we have heard and marked and understood the truth of duties delivered, lay them up, locke them closely and safely in our hearts, as in a safe repositary, we must commit good instructions to memory: had we rich treasures we would not lay them up negligently, but keepe them under locks and keyes, barres and bolts, why then should we let holy instructions slip out of our memories, whereby all former labours, as of the speaker, so of the hearer is utterly frustrate.

XXX.

If the Bee lights upon a flower where there is no honey (being wasted or gathered before) she quickly gets off and flies away to another, that will furnish her. Let us not loose our selves, and forget our errand; our father *Adam* lost our happinesse, and we are sent to seeke it; seeke it where it is, and goe handsomely to worke; say, I am not made for riches, they are made for me; I am not made for creatures, they are made for me, and I am their Master: Therefore these cannot make me happie. I am made for eternitie, for everlasting life and happinesse. Therefore let me study that, mind that, see that end beyond inferiour ends; Why doe men seeke wealth, but to be happie? why pleasures, why honours, but because they would be happie? If these cannot blesse and enhappie me, why should I burne day-light? why should I not off them, as the Bee gets off the plants that yeild her no honey, and once at last see where my businesse lies, in pursuing happinesse, and where my happinesse lies, in Gods wayes; the first step whereof is povertie of spirit.

Mr. *Harris*, Way to true happinesse.

XXXI.

When the wax is mollified and wrought warme, then set the seale on it, for it will receive the impression. And when God hath any wayes mollified our hearts, and made them in a mourning case, close with him; when we finde our selves any whit softened, take the hint, improve that opportunitie.

XXXII.

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XXXII.

Bees are naturally harmleſſe and patient creatures, each in and for her owne particular will ordinarily receive any prejudice, hurt, or moleſtation, and when they ſuffer are wondrous calme, but neare the hive, where the cauſe ſeemes to be publique and their common-wealth to be endangered, then they are marvelous hot and furious, and notwithſtanding the feirceſt oppoſition, will reſolutely charge all that ſtand in their way, in the defence of the publique, although they die in the conflict. But how farre ſhort are many Chriſtians in their practiſes? in any publique cauſe where the glory of God is concerned, or the common good intereſted, you ſhall have them beare all quietly: Oh, ſaith he, you muſt have patience, and beare with ſmall matters: but in a cauſe that toucheth his owne particular (ſay himſelfe be concerned in his penny, in his peace, in his reputation, or the like) then none are ſo fiery, none ſo furious, he is all upon a flame, then no penaltie is thought too great, no diſgrace too heavie for ſuch a perſon that hath done him diſpleaſure. Whereas a meeke Chriſtian in his owne cauſe will be meeke and ſilent, but in Gods cauſe zealous and earneſt. See it in *Moſes* when he was cenſured, diſparaged, reviled, he beares it quietly, pockets it up without diſtemper: but at another time when the cauſe was publique, when it concerned the glory of God, and the good of the Church, then none ſo zealous, none ſo fiery as *Moſes*, he cannot brooke nor beare.

XXXIII.

Bees in *July* extract honey out of many and various flowers, but yet by little and little and in a ſmall proportion; but if a honey-dew then falls, in a ſhort ſpace are they largely repleniſhed, and have a triplication of their ſweetes, and a full refection with their Nectar. Holy prayers, meditations and intercourſes with God, private readings, ſoule-ſoliloquies and ſpirituall diſcourſes are intertainers and ſatiſfiers of the Saints neceſſities, but in publique ſolemnities, God opens his treaſures, powers out his graces more abundantly; private devotions and ſecret

Dr. *J. Taylor*, The great Exemplar.

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secret offices of religion are like refreshings of a garden with the distilling and pettie drops of a watering pot: but addresses to the Temple, and serving God in the publique communion of Saints, is like raine from heaven, where the offices are described by a publique spirit, hightened by the greater portion of assistance, and receives advantages by the adunations and symbols of charity, and increment by their distinct title to promises appropriate even to their assembling, and mutuall support, by the piety of example, by the communication of counsels, by the awfulnesse of publique observation, and the engagements of holy customes.

XXXIV.

Drones to the eye are goodly creatures, fairer and larger then the working Bees, they make a great noise and lowd buzzing, flie often forth in the heate of the day, as if they were busie to advance the publique good: but they are all emptie and vain glorious shewes, for they contribute nothing to the publique store, but when after a few wanton vagaries, they have emptied themselves and whetted their stomacks, they returne into the hive and liberally feede of the Bees labours. So one writes of young *Marius*, that by reason of the stoutnesse of his talke and gesture, he obtained to be called the sonne of *Mars*, but when he came to proofe, he gained a new name, and was called the sonne of *Venus*. Thus many in their words appeare gracious, but by their actions are basely effeminate and fickle, wanton and idle.

XXXV.

Some hives will lie out two or three yeares together and not swarme or if they doe, very late, and then ten to one but they miscarrie and die, both the old stock and the swarme too. Now the best way to preserve such a stock, is timely to drive it into an emptie hive, and the Bees being many, will provide themselves sufficiently against winter, and swarme seasonably another yeare, so that in some cases driveing is not an undoing and destruction, but a preservation of the stock. Thus the gar-

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Mr. *Hooker*, Soules preparation for Chriſt.

diner cuts off a graft or ſiens to plant it into a new ſtock, not to burne it So the Lord ſometimes cuts off a ſinner from his abhominations, but he will not caſt him into hell, and the Lord melts the heart of a poore ſinner, but conſumes him not; but as the Goldſmith melts his gold, not to conſume it all away, but to make it a better veſſell; ſo the Lord melts a poore ſinner, to make him a veſſell of glory. The Lord will fire this proud heart of yours, and clip off thoſe knotty luſts, but if you belong to him, he will leave a little remainder of hope, that you ſhall be formed and faſhioned anew, not conſumed.

XXXVI.

The Queene Bee is a very amiable creature, and of a brighter colour, and more tranſparent hue then other Bees, ſhe is ſomewhat yellow under the belly, and on her legges, enclining to a golden colour, and this colour intimates her princely nature, her royall blood, and ſoveraigne dignitie. Some Heralds tell us, that none ought to beare gold-yellow colour in armes but Emperours and Kings, and ſuch as be of the blood royall.

Mr. *R. Abbot*, *Davids* deſires.

Oh that none would beare the glittering ſhew of profeſſion and holineſſe, but thoſe that are of the race of Jeſus Chriſt the King of Kings, then ſhould we not be as the Prieſts, Prince, and people of *Iſrael*, a ſnare in *Miſpah* to the ſimple, and a net ſpread on mount *Tabor* to catch them that know us not, with an opinion of good men and good women, faithfull Chriſtians and true beleevers, when we are nothing leſſe.

XXXVII.

The Bees worke is admirable, orderly, and geometrically proportionable, all full of wonder; whereas the Waſpes and Hornets combes for ſubſtance are unprofitable droſſe, although they be hexangle cels, and ſomewhat orderly framed downwards, yet upwards have no beautie, are nothing ſo polite and accurate. But the Humble Bees combes are but rude lumpes, a little hollowed for their owne end and uſe. To theſe three ſorts may we compare the obedience of moſt men profeſſing Religion; there is the obedience of the common Proteſtant, per-

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perhaps ſomewhat more then a Pagane performes, yet a rude and indigeſted devotion, heaped up together by law and cuſtome. Then there is the obedience of the hypocrite, in many things reſembling true devotion, ſuper-fine carriages, but yet on one ſide only, to man-ward ſomewhat exact and formall, but to God-ward rudely, careleſſe, and negligent. Whatſoever is done is not done with reſpect to God, and conſcience of his commandements. Laſtly, there is the obedience of the true beleever, ariſing from a grounded knowledge of the will of God and faith, and from a holy feare and love of God, conſcientiouſly and reſpectively to approve himſelfe to God in the diſcharge of his duties, and it is exactly modelized and ſquared according to the rule of Gods word.

XXXVIII.

It is an obſervation that a man cannot draw (even in naturall things) a long ſtraight line perfectly exact, except he draw it by ſome rule; It is not the ſteddieſt hand that can doe it exactly, but there will be ſome crookes. And therefore men uſe to take a rule to draw a line by. Certainly it muſt be ſo in ſpirituall obedience, a man muſt have an eye to the word of God, and make that his card and compaſſe to ſaile by, make that the rule and warrant of his actions. or elſe though he hit (as it were) hab nab at ſome circumſtances, it is not formall obedience. Now though a man may (hand over head, as they ſay) make ſome haſty and tumultuous doings, patch up a great deale of mud together, to make a wall, not caring for a ſquare to make it perpendicular (as the Humble Bees rudely compoſe their combes, hand over head without any great care or art) yet if a man would build a Temple or ſtately Pallace, he muſt doe it perpendicular, it muſt be evenly and orderly built according to an exact line both within and without alſo (and thus geometrically and regularly build the Bees as it were by ſquare and plummet) or elſe one part will over-top another, and all tumble downe. It is ſo in this cauſe, whatſoever is not ſquared by the rule of Gods word, what ever materiality it may have, it hath little or no formality of obedience. Dr. *Stoughton.*

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XXXIX.

Dr *Hall*, Occasionall Meditat.

How may ſmall things annoy the greateſt? even a mouſe troubles an Elephant, a Gnat a Lion, a very flea may diſquiet a Giant. What weapon can be nearer to nothing then the ſting of a Bee? yet what a painefull wound hath it given? that ſcarce viſible point how it invenomes and rankles, and ſwels up the fleſh? the tenderneſſe of the part, addes much to the griefe. And if I be thus vexed with the touch of an angry flie, Lord, how ſhall I be able to endure the ſting of a tormenting conſcience? as that part is both moſt active and moſt ſenſible, ſo that wound which it receives from it ſelfe, is moſt intolerably grievous There were more eaſe in a neſt of Hornets, then under this one torture: O God, howſoever I ſpeed abroad, give me peace at home, and what ever my fleſh ſuffers, keepe my ſoule free. Thus pained, wherein doe I find eaſe, but in laying honey to the part affected? that medicine only abates the anguiſh. How neare hath nature placed the remedie to the offence? whenſoever my heart is ſtung with the remorſe of ſin, only thy ſweete and precious merits, O bleſſed Saviour, can mitigate, and heale the wound; they have vertue to cure me, give me grace to apply them; that ſoveraigne receite ſhall make my paine happie; I ſhall thus applaud my griefe, it is good for me that I was thus afflicted.

XL.

Bees (as many other creatures) have wit enough to find out remedies for the cure of their maladies: to preſerve them ſtrong and vigorous, and to recover themſelves being weake; they (if they be neare the Sea) delightfully gather of flowers that grow on the ſalt marſhes, as Thrift, Hogs ſcurvy-graſſe, &c. and where they are remote from it, they water in ſinkes and ſaw pits, and extract a nitrous ſaltneſſe with their water. But man only being wounded by ſin, hath not by the light of nature any wit to ſeeke for remedie, yea only man is careleſſe of his eternall ſalvation. Every one is wiſe enough to doe evill, but to doe well they have no underſtanding: and no marvaile, for.

Jer. 4. 22.

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for as the cleareſt eye beholdeth not the brighteſt object, except the Sun-beames doe come betweene to enlighten it, ſo the ſharpeſt wits are not able to conceive the heavenly myſteries of our redemption, regeneration and eternall ſalvation, without the bright beames of Gods Spirit ſhining into them to enlighten them. Dr. *Jeniſon*, Earths vanitie.

XLII.

Thoſe hives are in beſt caſe where the Bees make moſt noiſe; but thoſe Common-wealths are in beſt ſtate where leaſt noiſe and tumult is.

XLIII.

As a man may eate too much honey, ſo pleaſure it ſelfe growes loathſome and diſtaſtfull by immoderate uſe, *Nempe voluptatem commendat rarior uſus*; moderation is the mother of duration. It is like the ſteddy burning of a taper, or the fire upon the Altar, which never went out, whereas headſtrong violence, like a ſquib or flaſh of lightning dazels the eyes for a moment, but is inſtantly extinct. Dr. *Hakewill*, King *Davids* Vow.

XLIII.

It is not good to provoke Waſpes and Hornets, but it is much worſe to provoke Devils. Some rude people will dare the Devill, and challenge and bid the wicked fiend to come if he dare, and to doe his worſt, &c. Silly wretches, the Devill laughs at them, to ſee how foole-hardy they are againſt him, that hath them in his clutches already. Mr. *Randall*, St. *Pauls* triumph.

XLIV.

Bees out of their unwearied and reſtleſſe nature are inceſſantly active for their future preſervation, and therefore when they cannot worke (Harveſt being warme but drie, and not affording many flowers) they will ſteale and plunder. And for that purpoſe ſend forth ſundry Emiſſaries, which ſearch and examine

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examine every hive in their walke. At first these espialls make faint essayes, but finding little opposition or contradiction, they then (yet doubtfull) enter, and finding the accesse easie, fetch presently a new supplie, and still recruite their forces, so that after a little while, it will be difficult, if not impossible to withstand them: whereas a guard before the doore, a stout resistance or peremptory repulse at the first, would have not only weakened, but frustrated all their designes. Wouldst thou get the mastery over thy sin (whatsoever it be) give it altogether peremptory denialls, suffer it not to delight thee in the least tickling conceite and pleasing speculation. It will be easie to abstaine from it when the deniall is resolute and peremptory; barre up the doores, give lust no audience, get as much strength to resist, as the lust hath power to attempt. If we cannot put out a sparke, how shall we put out a flame? if we get not the Mastry over the first motion to sinne, much lesse shall we be able to overcome when it is brought to maturity in action. Sin is like the water, give it the least way, and we cannot stay it, run it will in despight of us. And a streame riseth by little and little, one showre increasing it, and another making it somewhat bigger, so sin riseth by degrees.

Dr. *Preſton*, Doctrine of Mortificat.

XLV.

Bees when they are pleased and contented make an uniforme and delightfull harmonie, but being illegally acting as in robbery, or discontented in the losse or absence of their Leader, they are distracted. as it were, in their flights (nay frights) and uncertaine motions, and displeasing and harsh in their buzzing clamors; for as when the string of an instrument is out of tune, then the Musick doth jarre: so when discontents predominate, all is in a confused medley, atapie, and disorder. Discontents produce not greater mischiefe in the hive of the Bees, or of the Common wealth then evill concupiscence doth in the soule of a man, it marres all his good actions: to mingle water with wine, it makes the wine the worse; to mingle drosse with silver, it makes the silver the more impure: so evill concupiscence being in the soule of a man, doth staine disorder, and blemish his good actions, in that he performes them either with vaine-glory, or selfe-respect.

XLVI.

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XLVI.

Princes promiſe any thing to diſcover a treaſon, but they never truſt the Traitors, and if happily they favour them for a time, the hatred which followes after is more violent and irrecoverable: for they uſe them as Country-men doe their Bees, when they have drawn out the honey and wax, they chaſe them away with fire and ſmoake.

Pet Mathew, Continuat. of the generall hiſt. of *France*, in the life of *Hen.* the 4th.

XLVII.

Many hate not ſin, neither flie it becauſe it is ſinne, but as children doe Bees, not becauſe they are Bees, but becauſe they have a ſting; ſo doe they ſinne, becauſe it is hurtfull.

M *Stock*, expoſ. on *Mal.* c. 2. v. 16.

XLVIII.

When Bees are moſt angry in their ſwarming or fighting, caſt but a little earth upon them, and they are preſently quiet, and give over their humming noiſe and contention. So though nothing elſe can aſſwage the tumor of the proud, or quench the burning deſire of honour in the ambitious, of wealth in the covetous, of pleaſure in the voluptuous; yet the conſideration of the grave can. He that ſeriouſly thinketh with himſelfe, theſe goodly roabes of mine, cloath nothing but dung, all my dainty fare feedes but wormes. I who (perhaps) have power over other mens lives, have no power of my owne life, no not for a moment. Even whilſt I ſit upon priſoners and condemne guilty perſons, I am arraigned in my conſcience, and plead guilty before God: he that keeps downe his heart with theſe thoughts, can no more be overthrowne with pride, then a ſhip which is well ballaſted be blowne away with a ſtorme.

Dr. *Featly*, Judges Charge.

XLIX.

There are no ſtraines in Muſick ſo delightfull, as thoſe in which diſcords are artificially bound in with concords; nor diſhes ſo dainty as thoſe in which ſweet things are ſeaſonably mingled

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mingled with sowre; nor pictures so beautifull as those, in which bright colours with darke shadowes are curiously tempered. Nor would the sweetnesse of honey be so much commended, if there were not difficulty and danger in the compassing of it. Did we not feare the sting in the Bees taile, we would not so much value the honey in her mouth? but what with perill, if not paine, is procured, is better prized, more praised.

L.

Bees as they are alwayes laboriously painfull, so especially when they have been long shut up and confined by unseasonable weather; then upon the first approach of a calme Sun-shinie day, doe they rouse themselves up from their (now loathed) rest; or on the fall of a honey-dew in a warme and mild season doe they eagerly pursue their delightfull labours. Shall irrationall creatures take the hints of opportunitie, and shall we trifle them away: Let us be jealous and cautious, of these creepings and turnings, these serpentine tricks of the flesh, and the world, that would slay us: Lay hold when thou hast an opportunitie to heare, to read, to pray, *Post ist occasio calva*, make use, take the occasion, when God hath led thee to privacy, thou art there where thou maist freely have communion with thy God, slight it not negligently, let it not slip, it is Gods call, doth the Spirit of God whisper us, saying, this is a dutie thou must doe, and thy conscience doth witnesse with thy spirit, that it is so, and thy owne affections (if thou hast any heaven-ward duty-ward) doe stirre thee also, let not this wind blow in vaine over thee, extinguish not the Spirit by neglect, when God offereth thee a hint by his Spirit take it, take that hint, I say, a man may doe more in an houre of prayer, when he hath the motions and the power of the Spirit, when the fore-runner of it is some sweet motion cast into the heart of a man, some sweete touch of meditation puts him upon duty, oh then if a man would make use of the sailes of that hint, by that wind he might dispatch a great voyage of prayer, and returne richly laden.

Dr. *Stoughton*, Righteous mans plea to true happinesse.

LI.

The first life of a Bee is scarce worthy to be called a life,

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vita eſt; *non vitalis*. She is included in a little narrow cell, without any locomotive power; ſhe hath neither eye to ſee, nor organ to heare; Is not ſenſible of danger, much leſſe able to prevent it; Is only capable of that meate, which is put into the mouth, whereby it growes but unprofitably, like a plant rather then a brute: for it can neither helpe nor hurt, but after it is tranſmuted by death, it appeares in a more excellent and glorious condition: It is agill and induſtrious, beneficiall to it ſelfe, to others. In a word, the firſt life is but a ſparke raked up in aſhes, the other is a ſparke blowne up into a flame; the firſt is the ſap in the roote, the latter like the ſap that fills the branches with leaves and mature fruite Wherefore is it that the Saints deſire death, not that they might be deprived of the comforts of life; they would not put off their cloathes, but to be better apparelled. They deſire death to attaine a life, that might ſwallow up the weakneſſes, ſickneſſes, troubles of this: not as a gulfe ſwallowes up that which is caſt into it, or as the fire ſwallowes up the wood by conſuming it; but as perfection ſwallowes up imperfection, or as manhood ſwallowes up childhood, not extinguiſhing it, but drowning it that it is not ſeene.

LII.

By nature the Bees expell the Drones, becauſe they affect only eaſe and content themſelves to doe nothing, caring only to avoyd labour which attends upon active and induſtrious imployment. And why was *Meroz* curſed? becauſe they came not out to the helpe of the Lord againſt the mighty; and idle and ſloathfull ſpending of a mans life is every where in Scripture condemned. Willfull defects and omiſſions of doing good bring damnation, he that wanted his wedding garment was thruſt out of doores and caſt into utter darkneſſe.

Mr. *Sym:* Lifes preſervative.

Judg. 5. 23.

Mat. 22. 13.

LIII.

Soft wax admits any ſtampe, and ſimple perſons are eaſily corrupted by themſelves, or deceived by others.

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LIV.

Mr. *T. Jacombe, Enochs walke.*

The world is troubleſome, it's gall is more then it's honey, it is not only vanitie but vexation; have all, it is but a vanitie, want but a little 'tis vexation. *Ahab* is ſick, becauſe he hath not poore *Naboths* vineyard; *Haman* wants but a knee from *Mordecai*, and this imbitters all.

LV.

Mr. *Bolton*, Directions for walking with God.

All the wayes of worldly pleaſure, are ſtrawed with needles and nettles, which ever and anon prick and ſting her darlings, as they pluck her fading flowers: ſo that at beſt, they are but like Beares robbing a Bee-hive, who ravenouſly riffle the combes, and with much adoe ſuck out a little honey, but in the meane time are ſoundly ſtung, and ſwollen about their heads for their painfull pleaſure.

LVI.

Honey over liberally eaten cauſeth vomiting, the ſtomack cannot hold it: ſuch are ill gotten goods to the heart, as the *Canaanites* were to the good land, the land groaned till it had ſpewed them out, the conſcience travells till it be delivered of theſe. They are to the ſoule as *Jonah* to the Whale, the Whale had devoured him, but could not reſt, till he was reſtored; ſo it is with the conſcience, if men play the whales, and make fiſh of all that comes to net, the conſcience will be as weary of ſuch a burden, as the whale of the Prophets bones.

LVII.

Mr. *Harris*, *Abſelons* funerall.

Many lay the whole ſtrength of their affections, upon the things they fancie (or as the Creeple layes his full weight upon his crutches) and therefore when they are taken from them (as *Pharaohs* chariot wheeles) they are drawne upon all foure, and ſtick in the mud: yea they ſet on their affections as the Bee her ſting with all their might and ſtrength, they convey into

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into others their very bowels and hearts, and therefore when they are gone they are heartleſſe.

LVIII.

He that is pained with the Bees ſtinging, muſt for cure ſpeedily pluck out the ſting, and then apply juice of mallowes mixed with oyle, or honey to the wound. And the beſt remedy for a wounded conſcience, is firſt to pluck forth the ſting of ſin, and then to waſh in Chriſts blood, and for the future keepe the heart above all keepings; for as the eye is ſubject to infinite diſtempers, ſo is the conſcience. *Geminianus de exemplis. lib. 3.*

LIX.

Bees ſolitary and alone (eſpecially in the night or winter ſeaſon) are quickly benummed with cold, and die; but many united together, are agill and livel; nay one chilled with cold, put to the many, recovers, and hath a new returne of life. So that I doe not improperly ſpeake, if I ſay, they live as much by heate as by meate. And therefore if there be many in a hive, though there be but a tollerable ſupply of food, they will doe well; but if they have never ſo much meate, and be not many and numerous, they will miſcarry and come to nothing. The communion of Saints puts life into thoſe that have it not, and increaſeth it in thoſe in whom it is. The health of the body doth not communicate it ſelfe to others; it is otherwiſe in the life of the ſoule, the life of it makes others to live more, as iron ſharpens iron, ſo one holy man doth another: when two lie together they keepe one another warme, there is action and redaction, this is a powerfull meanes to get and increaſe this life.

LX.

Bees in the Spring when the weather is faire will worke chearefully, but if the Sunne withdraw his beames, the wind blow hollow, the chilling ſhowers deſcend, then they are preſently dull and liveleſſe, ſcarce appeare, if at all not farre from

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the hive; it is an uncomfortable time, the spirits of the Bees lower, are heavy and sad: we see it also in the body, that the animall spirits in the braine, which are the causes of motion and sense, if they be obstructed, there followes an Apoplexie and death. So it is, between Christ and the soule, he is the Sunne of righteousnesse, by whose beames we are all comforted and cheared, but when they are withheld, then our spirits decay and are discouraged. Summer and Winter arise from the presence and absence of the Sunne, the presence of the Sunne when it comes neare causeth the earth to be cloathed with a rich embroiderie of fruits and flowers. And what makes the Summer and Winter in the soule, but the absence or presence of Christ? what makes some so vigorous beyond others, but the presence of the Spirit? As it is in nature so it is here, the presence of Christ is the cause of all spirituall life and vigour, but if he withdrawes his presence a little, the soule failes.

Dr. *Sibbs*, Bowels opened.

LXI.

Bees when they assault a man strike fiercely at the face, the beauty of man; and principally in the face aime at the eye, the beautie of the face. Thus Satan though he be malicious against all mankind, yet chiefly against those who by Christ are conquered out of his hand, and having their garments washed in the blood of the Lambe are most beautifull. For as the Panther rageing on the picture of a man, bewrayes the hatred he beares unto him. So the Devill to testifie how much he hates God himselfe, spends the greatest of his fury on them that beare the image of God. Thus doe Satans instruments incarnate Devils, though they care not usually whom they wrong, oppresse, injure, hate, yet most of all the holy ones in earth are the object of their hatred, they are the drunkards songs, and a sport to the foolish. What muttering, what whispering, what censuring, what sinister construction is set upon every action of theirs? what discovering, what blazeing of infirmities? what so high, but they will reach it; what so deepe, but they will be sounding the bottome of it? but a day will come when they will cry out with *Cicero*, *O me nunquam sapientem, et aliquando id quod non eram falso existimatum.* Aye me, that indeed was

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was never wise, but falsely thought to be what I was not. And with those in the booke of *Wisdome*; *We fooles thought his life madnesse, and his end without honour: how is he accounted among the children of God, and his portion among the Saints?* But the innocent heart shall then lift up a chearfull countenance, as knowing that though here it were despised, yet there it shall be justified and rewarded with a crowne of glorie. Wisd. 5. v. 4, 5.

LXII.

Waspes gather not as Bees yet some seeing them running on the tops of flowers, and sucking in the cels are notably deluded, supposing that they gather as well as the Bees: Whereas they only suck to satisfie a wanton fancie, but carry away nothing for a future supply of themselves or Common-wealth. Hypocrites in many out-side duties may comply with beleevers, and have their conversation in such actions, that they are usually practicall in, and so deceive many, who are easily beguiled with similitudes. All deceite is from similitude. False wares having the same die that the true have, deceive the buyers; so falling starres are like other starres. When we see men that professe religion false-hearted, many are apt to thinke that all are so; wherefore the Apostle prayes that they might abound in all knowledge and judgement to discerne of things that differ: this proximitie makes many deceived. Phil. 1. 10.

LXIII.

A lamp or candle by the brightnesse of it inticeth the Bee (as many other flies) to embrace it, but by that meanes she is eyther drowned in the oyle, or burned in the flame. So the shewes of sinne and the pleasures of the world, entice the mindes of men that their hearts are drowned in many feares and sorrowes, and when they suppose that they have catcht all, they themselves are caught. Finally, corruption and destruction (the naturall ends of all things under heaven) layeth hold upon them, *Qui lachrimarum causas tripudiantes peragunt, et ridentes mortis negotium exequuntur.* Who goe dancing through the causes of their mourning, and with laughter act the tragedie of their owne death. *Greg: Moral. lib. 20. c. 8.*

LXIV.

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LXIV.

The Titmouse is a great destroyer of Bees, and more easily and certainly to obtaine his pray, will in the winter watch at the doores of their hives (their Castles of security) and as soone as any come forth seizeth upon them, and eateth them; If none appeare he knocks with his bill, and they feeling the motion come forth to know the cause, and are presently devoured by him. In the Spring time he resorts to the willow trees, (whither the Bees come to gather) and there invades them, so that they are no where secure. And thus, and more active is the great Apollion the Devill to destroy mens bodies and soules, sometimes fitting temptations to mens tempers and constitutions (for he cannot by force without our owne consent prevaile over us) As a bait of promotion for *Absalon*, because he is ambitious; of pleasure for *Sampson*, for he is voluptuous; every man will not be drawne to sin by every object; an earth-worme esteemeth not pleasure, and a man by temper voluptuous, esteemeth not profit much, nor an ambitious man either; and therefore the Devill who is wise (as *Isidore* saith) hath his μεθοδείας, *Ephes.* 6. 11. and his βάθη, *Rev.* 2. 24. his artificiall wayes and deepe reaches, and presenteth men with sutable objects, for the love of which he thinkes they will be content to straine their consciences, and breake Gods lawes; and presenteth them at fit times and places, for every time is not a season all places are not opportunities, there is the houre and power of darkenesse. And there is the time of pleasure and prosperitie, when men are apt to be regardlesse of themselves, and the high Priests hall to worke upon *Peter*, the times of our weakenesse when we are wholly deprived of such a friend or governour, as might by their watchfull observation of our courses restraine us from sinne, or by their counsell uphold us, by their rebukes and corrections recover us if we fall.

Isidor. lib. 1. de summo bono.

Mr. *Hoard*, Soules misery.

Luk. 22. 53.

LXV.

If the Queene Bee miscarrie in the hive, or flying out of it for recreation or evacuation (for otherwise ordinarily she stir-

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reth not forth) come to some mischance. All her subjects are presently in a sad mourning posture; now there is nothing but confused discursions, a wofull complaining, a cessation from worke, and quickly a miscarriage and death of all. And if Christians sad and grieve the holy Spirit of God, and cause him by their sinnes to goe away from them, they cannot (if they be sensible of their condition) but be in a sad and mournfull estate; for as the ayre is darke and chill, the earth cold and wet, and the face of the sublunary world uncomfortable, when the Sunne, which is the light and life of it, hath withdrawne his light; so must the face and state of the soule needs be very gloomy, when the Spirit, who is the comforter, hath withdrawne his presence.

LXVI.

When a man crops a flower from the earth, he can get nothing out of it, but the sweetnesse of the smell, or the delightfulnesse of the colour: but when the diligent Bee comes, she will make more of it, she will extract that which is (as it were) the very spirtle of the starres. So when simple carnall minded men, read the Poets and the Philosophers, they gather nothing but delight and pleasure; but when the diligent Bee comes, a wise man, a serious considerate man, he drawes honey out of them. Dr. *Day*, Doomesday.

LXVII.

There is left in the Church, a power and authority, which must be used when there is occasion, to draw the sword against contumacious rebells, which will not be reclaimed by other meanes. As S^t^. *Ambrose* saith, The Preacher of the word must be like unto the Bee, he must have both a sting and honey.

LXVIII.

Bees when they have filled themselves with water, they cannot gather honey, untill they have vomited it up. And he that will thrive by the food of the word, must empty and unburden the

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the stomack of his soule of all things that will hinder the purity and power of it from taking possession of his heart: he must bring a heart and a head like two emptie buckets to draw with geedinesse and joy the waters of life out of the wells of salvation: even the honey-combe, the sweetest thing in the world is loathsome to a full stomack.

LXIX.

Many creatures (in particular Bees) by antipathie and instinct of nature shunne that which is contrary or obnoxious to their safetie; and men by their intellectuall parts doe foresee and discerne what is hurtfull and dangerous to them or their lives, and decline and oppose things that have a tendency thereunto.

LXX.

Mr. *Renolds*, explicat. of the 110 Psal.

As *Sampson* met the Lion as an enemie when he was alive, but after he was slaine, he went unto him as unto a table; there was only terror while he lived, but honey when he was dead. So doubtlesse many men to whom the bodily presence of Christ, and the mighty power and penetration of his heavenly preaching, whereby he smote sinners unto the ground, and spake with such authoritie as never man spake, would have been unsufferably irkesome and full of terror (as it was unto the Scribes and Pharisees) can yet now that he is out of their sight, and doth not in person, but only by those who are his witnesses torment the inhabitants of the earth, pretend much admiration and thankfull remembrance of that death of his which was so full of honey for all that come unto him.

LXXI.

Bees are diligent and painfull in their worke, but frugall and temperate in their feeding. Their food consists of two kindes, or rather one diversified, wet and drie, honey and Bee-bread, so that you may draw a bill of their fare, and a catalogue of their provision in setting downe bread and water: and having these

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theſe they have enough, for they want nothing. But many men lay out on a meale a yeares allowance, and waſt as much proviſion in a few houres as were ſufficient to releive the famine of an armie. Quickly doe many men devoure all that all other members (the Caters and Purveyors) can bring in, yea whatſoever art can deviſe, luxurie, and all the obſequious ſervant of the idoll Belly invent; So that *Judas* his purchaſe, *Aceldema*, is no way comparable, that indeed a greedy grave, employed to funerall uſes, able in eight and fortie houres, as it is reported, to conſume the fleſh of any carkaſſe therein buried: but this in foure and twentie houres conſumes many carkaſſes of fiſhes and fowles, and generally twice a day all the fleſh therein interred.

Sandys, page 187 and other travellers.

LXXII.

What is a Bee to a Beare, or a Mouſe to an Elephant? and yet if a Bee faſten his ſting in the noſe of a Beare, or a mouſe creepe up and gnaw the trunke of an Elephant, how eaſily doe ſo little creatures, upon ſuch an advantage, torment the greateſt? certainly the proudeſt of men have ſome tender part into which a ſting may enter, the conſcience is as ſenſible of Gods diſpleaſure, as obnoxious to his wrath, as ſubject to his word in a Prince as in a beggar. If the word like *Davids* ſtone find that open, and get into it, it is able to ſmite the greateſt *Goliah*.

LXXIII.

The Drones are a lazie and careleſſe generation, delighting themſelves in ſportfull recreations, and delicious dainties: never providing nor forecaſting for themſelves how it ſhall be with them afterwards, but thinke to fare tomorrow as they have done to day, and ſo ſucceeding dayes, as they have dayes; but the provident prudent Bee, finding a likely decay of the gathering ſeaſon, and obſerving that the Drones are only ſpenders and riotous waſters, doe at laſt violently expell them their hives; which they are unwilling to leave, having provided nothing for themſelves, and therefore readily returne againe; but becauſe they will take no warning, they then ſlay them

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without pittie or compaſſion. And as dangerouſly doe many men pretending for wiſdome play the fooles, delaying the practiſe of repentance, procraſtinating to take the offer of grace, and thus deceiving themſelves. They thinke to doe it perhaps tomorrow or afterwards, and ſo oft cozening themſelves, the time they prefixed ſliding away, and then another is determined, which likewiſe goeth away but nothing is done, and ſo another, till at laſt time be no more. Take heed you be not deceived in this, I will doe it now and now, but *modo et modo non habet modum.* The Chariot wheeles when they runne, the ſecond runs neare the firſt all the day long, but never overtakes it. As in a clock the ſecond minute followes the firſt, but it never overtakes it; ſo it is with us, this doing of it now and now, and to morrow and to morrow, theſe little diſtances deceive us and delude us. We thinke to doe it in a ſhort time, and by reaſon of the neareneſſe and vicinity of the time, we thinke we ſhall doe it eaſily, but we are deceived with it. As Graſhoppers deceive children, when they thinke to lay their hand upon them, they hop a little further and a little further, that in the concluſion they take them not at all. So it is with us, we cozen our ſelves in that manner, we loſe our life, we loſe our opportunitie of taking grace, becauſe we thinke it to be ſo neare: we thinke we can take it the next weeke, or the next moneth, and out of this we are confident it is in our power, and ſo our time flies away, and we have never part in it.

Dr. *Preſton*, New Covenant.

LXXIV.

The Bees labour diligently to get food for the ſupply of their young, they bring it home to the hive, and lay it up in the combes, but (alas) they are yet never the better for it, for they are fixt in their cels, they cannot ſtirre forth to take it: therefore they doe more, they bring them food, and put it into their mouths, as oft as they need. The reaſon why mens hearts are not wrought upon in the Miniſtery of the word, is becauſe many Miniſters labour not the right way to ſhew men their ſinnes, and to convince their conſciences, they inſiſt only in generalls, whereas a particular application brings every man his part and portion, and not only ſets the diſh before him, but cuts him meate and carves it for him.

LXXV.

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LXXV.

If any ſhall demand why Bees of all creatures are ſo indefatigably diligent, and with unwearied paines follow their ſweet labours, flying ſometimes abroad in ſtormy ſeaſons, whereby (oft prevented of a returne) they miſcarry in the field. Nay when they are old and gray, feeble and faint, they will venture forth, though they loſe themſelves, for moſt of them die at their worke — *vitam ſub faſce reponunt*. May I not anſwer, firſt becauſe they hope in winter delightfully in reſt and quiet to enjoy their plenty. Secondly, ſome ſay for feare of puniſhment, thoſe that are idle being enforced, but a feare of ſtarving (the worſt of puniſhments) prompts them forth; for if they be not timely furniſhed, with a competent proviſion, they muſt inevitably periſh. Thirdly, becauſe it is incompatible to their nature to be idle. They have a naturall propenſitie and inclination to their honey-gathering labours. *Tantus amor florum et generandi gloria mellis.* And this delight, as a watch wound up, carries them ſweetly on through all difficulties and dangers. Three goodly threds which twiſted all together have ſtrength enough to draw the moſt ſleepie ſluggard out of his bed of ſloath and idleneſſe. And if it ſhould be queſtioned, why the people of God are ſo conſtant, ſo faithfull in ſuch fruitleſſe ſervices (as the world accounts them) and not daſhed out of countenance, nor danted by afflictions, but hold on their practice and diligence in a courſe of obedience, maugre the malice and miſchiefes the oppoſitions and contradictions of men and Devills. Firſt, from the hope of a bleſſed reward, which makes them with *Moſes* chooſe rather to ſuffer afflictions with the people of God, then to enjoy the pleaſure of ſin for a ſeaſon. Secondly, from the feare of a juſt puniſhment and a curſe if they ſhould decline and balke the ſervice of God. *For we muſt all appeare before the Judgement-ſeate of Chriſt, that every one may receive according to that he hath done.* And though here were weight enough (as a late learned Divine obſerved) to ſet the moſt ruſtie wheeles a going; yet becauſe theſe two may worke in baſe mindes, and are in themſelves but ſiniſter ends, which many that ſeeme to goe ſtraight may looke a ſquint upon; feare in

Heb. 11. 25.

2 Cor. 5. 10, 11.

Dr. *Stoughton*, The preachers dignitie and dutie.

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the fore-ward, and hope and reward in the rere-ward, marshall all their forces, and love in the maine battell, or rather *tota in toto et tota in qualibet parte*, animates every one to valour and victory: punishment is servile, and hope of reward is mercenary. There is a third motive which is the peculiar character of a Christian minde, and that is love. And this winds up a Christians affections to that intention of zeale and fervency. Reward hath an attractive, and punishment an impulsive, but love hath a compulsive faculty: reward drawes him, punishment drives him, but love hales him forward to the discharge of his duty; hope like a tender mother enticeth him with a reward, feare like a severe Master incites him with a punishment, but love like a soveraigne Lord commands him. Hope hales before him, and feare blowes behind him, and both on each side rowe him, but love within like the very soule of obedience, teacheth him a naturall motion.

LXXVI.

Bees are neate and cleanly creatures, and carefull to carrie forth all drosse, soile, and filth, least their hives should be defiled; yet sometimes becaufe of long violent colds, many enemies, weaknesses, becaufe of some distempers, it is requisite for the Bee-master to helpe in the purging of them. The Church of God after a long time of peace is apt to gather and contract corruption, as water doth by standing, as the ayre it selfe will, if it have not the wind to purge it. And as it is in the bodies of men, if they be not curiously looked unto (after a certain time) they will gather such a burden of humours, as will rise to a distemper, so that they must be let blood or purged, &c. Such is the infirmitie of mens nature, and the malice of Satan, that enemy to mankind, that the best of Gods people will quickly gather some distemper or other, and stand in need of purging. And we are as much beholding to Gods corrections as to his comforts in this world, without which we should quickly settle upon our dregs.

Dr. *Sibbs*, The Churches visitation.

LXXVII.

Bees in the honey-season bestirre themselves; the winter is long,

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long, and their enemies many, and therefore much paines must be taken before-hand, or else they will miscarry. And if they be late swarmes, notwithstanding all their diligence, except there be an additionall supply by timely feeding, want cannot be prevented. Were the winter short, robbers few or none, ill weather but a few weekes, as in *Sicilia*, *Ethiopia*, and some Southerne Climates, small preparation might serve the turne; but in our colder regions the greatest paines are seldome too much, sometimes not enough. Whosoever enters upon the profession of religion with vaine hopes of ease and pleasure, doth but delude his owne soule; fore-cast therefore what will fall, and get provision of grace before-hand to sustaine. As if a man were to goe a dangerous journey, he provides himselfe of weapons and cordialls, and all the encouragements he can, least he should faint in the way. Whereas he that walkes for his pleasure, provides nothing, he cares not for his weapons, or his cloake, because if a storme comes, he can quickly run under shelter. He that makes religion a recreation, can walke a turne or two for his pleasure, and when any difficulty ariseth, can retire and draw in his hornes againe; but a true Christian that makes it the maine act of his life to please God, armes himselfe for the worst that can befall him; he is resolved not to retire for any trouble or persecution whatsoever that stands between him and happinesse.

Dr. *Sibbs*, Difficulty of salvation.

LXXVIII.

Man swerving from the end for which he was created, and serving the Devill, the world, and his fleshly lusts, degenerates from his nature, and becomes worse then the very beasts, for they stand firme in their places enjoyned them by God in their creation. The Bee is carefull to doe Gods worke, having no tutor nor remembrancer, but man is senseless and careless to obey his Maker.

Mr. *Cobbs*, The worldlings looking-glasse.

LXXIX.

As the Bee sucks honey out of every flower, and a good stomack sucks out some sweet and wholsome nourishment out of what

Mr. *T. Goodwin*: The vanitie of thoughts

what it takes unto it's ſelfe: So doth a holy heart, ſo farre as ſanctified, convert and digeſt all into ſpirituall and uſefull thoughts.

LXXX.

Dr. *Hall*, Occaſionall Meditat.

There is no vice in a man, whereof there is not ſome analogie in the brute creatures: As among us men there are theives by land, and Pirats by ſea, that live by ſpoile and blood; ſo is there in every kind among them variety of naturall ſharkers: the Hawke in the ayre, the Pike in the river, the Whale in the ſea, the Lion and Tyger in the deſert, the Waſpe in the hive, the Spider before the hive, ſometimes among the flowers in the Bees walke. And ſee how cunningly this little *Arabian* ſpreads out his tent for a prey, how heedfully he watcheth for a paſſenger? ſo ſoone as ever he heares the noyſe of a Bee (or a flie) a farre off, how he haſtens to his den; and if that ſilly heedleſſe traveller, doe but touch upon the verge of that unſuſpected walke, how ſuddenly doth he ſeize upon that miſerable bootie? and after ſome ſtrife binding him faſt with thoſe ſubtle cords, drags the helpleſſe captive after him into his cave. What is this but an Embleme of thoſe ſpirituall freebooters that lye in waite for our ſoules; They are the Spiders, we the Bees, they have ſpread their nets of ſinne, if we be once caught, they bind us faſt, and hale us into hell. Oh Lord, deliver thou my ſoule from their craftie ambuſhes: their poyſon is greater, their webs both more ſtrong, and more inſenſibly woven: Either teach me to avoyd temptation or make me to breake through it by repentance; oh let me not be a prey to thoſe fiends that lye in waite for my deſtruction.

LXXXI.

Mr. *Watſon*, Art of divine contentment.

The Bee gives honey, but ſometimes ſhe ſtings: proſperitie hath it's ſweetneſſe, and alſo it's ſting. Sunſhine is pleaſant, but ſometime it ſcorcheth.

LXXXII.

Bees love their Queene, and therefore will fight couragiouſly

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onſly in her defence, is ſhe preſent with them, and excites them with her voyce (like a trumpet) they will even to the laſt gaſpe venture their lives, they are in the eye of their Leader, and that makes them bold and daring. And ſhall a Chriſtian pretend love to his God, and not be couragious in the preſence of his great Lord and Maſter, who is ever preſent with him, about him, and in him; undoubtedly, he that hath ſeene God once in the face of Chriſt, dares looke the grimmeſt creature in the face, yea death it ſelfe under any ſhape. The feare of all things flies before ſuch a ſoule: only a Chriſtian is not aſhamed of his confidence. Why then ſhould he not be as bold for his God, as others are for the baſe gods they make for themſelves?

LXXXIII.

Bees long ſhut up in their hives in winter with extremitie of cold, upon a faire calme day when the Sun hath warmed and cheared them with his quickning beames, will ſhew their thankfullneſſe (as it were) in a pleaſing murmur, and dance Lavolta's in many circumgiring motions and circling vagaries in the ayre, and then returning into their hive will make there a lowd congratulatory humming, whereas before they were in a dull and ſilent poſture. And it is as naturall for the new creature (when it feeles the Sunne of righteouſneſſe warming the ſoule, when it taſts of God in Chriſt) to ſhew forth it ſelfe in thankfullneſſe and praiſe: and it can no more be kept from it then fire can keepe from burning, or water from cooleing. It is the nature of the new creature ſo to doe.

Dr. *Sibbs*, com. in 2 Epiſt. ad *Corinth.* c. 1. v. 2.

LXXXIV.

Bees when they goe forth in a ſwarme, will ſometimes be provided of a habitation before-hand, ſome hollow tree or hive not farre remote where the Bees dyed in the precedeing winter; but when they come to it (if not before) they will prepare and purge it of all dead Bees, ſtinking Sandaracha, rotten combes, and where the out-ſides of the combes are drie and criſpie, they will eate and pare off the rotten waxe, as Maſons in building pare off the crumbling out-ſides of the weather-beaten

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beaten ſtones, (and then make a new front) that they may not after build upon a rotten noughty or weake foundation, their art is not to pull downe edifices, but to build them up, but they doe that which belongs not to them properly, that they may doe that which belongs to them; for they will not build upon an unſound and crumbling foundation. God to make his children truſt in him, caſts them out of themſelves, he will not build on a rotten foundation, he will not build on carnall truſt, pride, and covetouſneſſe, but he will demoliſh that rotten foundation with afflictions and croſſes. He will uſe ſuch meanes that we ſhall have ſmall joy to truſt in ſinne; he will force us by croſſes and afflictions to goe from our ſinnes, he will demoliſh that rotten foundation that he may raiſe up an excellent edifice and frame of the new creature, that ſhall endure to everlaſting. The worke of a Phyſitian is to cure nature, not to weaken it, but if the body be diſtempered, it muſt be weakened before it be ſtrengthened, to make that ſound he muſt give them ſtrong purgations, that ſhall afflict them and affect them as much as the diſeaſe for a while, but all is to make them ſtrong afterwards: So God afflicts us to drive us out of our ſelves, that we may come at laſt to truſt in him, in whom is all our good and happineſſe.

LXXXV.

Bees live like Souldiers in a Camp, and therefore as beſieged Cities or Armies that feare an approaching enemy, never dare give themſelves wholly over to ſecuritie, but alwayes night and day have their ſcouts, centinels, *corp-du-guard*, to keepe watch and ward, leaſt ſome of their many enemies ſhould by a ſudden Camiſado ſurprize or beate up their quarters. We have a helliſh enemy the Devill, a roaring Lion, who waiteth for a time of drowſie ſecuritie, wherein he may ſuddenly ſeize on us, and teare us in peices. Therefore when there ſeemes to be moſt ſecuritie and ceſſation of ſpirituall armes, let us conceive the moſt danger to be at hand, and prepare and arme our ſelves againſt the day of battell. For *Hieron:* ſaith truly, *Tunc maxime expugnaris, cum te expugnari neſcis*, thou art moſt aſſaulted, when thou feeleſt no aſſault. When our adverſary ſeemes to ſleepe, he

Ad Heſied. lib. 2. c. 6.

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he watcheth but an opportunitie to run upon us, and destroy us. If wee were assured that some fearefull enemy was upon his march and approaching towards us with fire and sword; the trumpets sounding, the drummes thundering, the horses neighing, and the Cannons roaring; what watch and ward would we keepe? how would every one bestirre him, and who would not thrust himselfe into the danger, and be ready to stand in the gap to save his Countrey, his life, his friends, his libertie, his goods? But Satan our Arch-enemy, who seeketh to destroy that which is farre more precious unto us then all these things, yea then all the world (*For what shall it profit a man if he shall gaine the whole world, and lose his owne soule*) is not only approaching, but also encamped against us with all his forces, and shall we now sleepe in sinne, and be senseleſſe in grosse securitie.

Mr. *Fosbroke*, Conflict between man and the Devill.

August Soliloq. 16. Inimicus ut occidat semper vigilat sine somno, et nos ut custod amus nolumus erigilare e somno.

LXXXVI.

Bee-Masters tell us, that they are the best hives which make the greatest noyse; so that is the best conscience which makes the greatest noyse with daily reasonings before it's owne barre. If we never goe to bed before we have parlied it out throughly with our hearts, then we shall find of our selves as *Alexander* said of *Antipater*, That he did weare white garments without, and was purple within; so we will give no rest till we find some comfortable testimony of our amendment.

Mr. *R. Abbot*, The assize at home.

LXXXVII.

It is observable that the creatures neareſt the earth, are most greedy to accumulate, what creature stores up so much provision as the Bee? But the birds of the ayre that flie next heaven, neither sow nor reape, nor carry into the barne, saith our Saviour. We are next to heaven in profession, let us hate to be furthest off in conversation.

Mat 6 26.

LXXXVIII.

Bees are small creatures, but have great and dareing spirits,

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(and almost deadly poyson) though industry and diligence can worke much to tame other creatures, yet little on this; by a continued converse and frequent presence, their rage and fury may be palliated, but once provoked neare the hive, they acknowledge no respect to any; For the most part those beasts have least immanitie, that have most strength, Oxen, Horses, and Elephants are tame and serviceable; but Bees and Waspes have stings: So wisely hath the Creator disposed, that there might not be a conjunction *et potentiæ et malevolentiæ*, that malice and might may not meete; so they are suffered to have will to hurt and not power, or power and not will.

Mr. *Adams*, Politick hunting.

LXXXIX.

Religion is the greatest enemy to religion, the false to the true, *favos etiam vespæ faciunt*, Waspes also make combes, though instead of honey we find gun-powder.

Tertul.

XC.

The grub or worme in it's first state or life is a rude creature, not much delighting in it selfe, lesse delighting others, but when it is shut up to be transmuted, then it is for a time a formelesse lump, without any beauty or comelinesse: but waite a few dayes and the parts will appeare, life will move in these yet imperfect members which are at length perfectly formed, and then it comes forth an agill usefull creature. And as God doth not make the whole fabrick of the world at once, though it was not impossible to him being a God almighty, but in the space of six dayes, so doth God deale with his children: when God creates in his children a new heart, he suffers first their hearts to be as a rude and massie lumpe, full of darknesse, and then sends his holy Spirit into their hearts, which illuminates them, and drives away those black clouds of darknesse and ignorance, and then he breathes into them the sweete ayre of his Spirit; And thus out of *Tohu* and *Bohu* is the new creature formed.

Mr. *Cotton*, Expos. in Epist. *John.* c. 3. v. 2.

XCI.

We should doe as the Bee when she hath sucked sweetnesse from

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from the flower, ſhe better concocts and refines it in her owne bodie, and ſo it becomes pure honey. Thus when we have ſucked any precious truth, we ſhould by holy meditation concoct it in our hearts, and then it would become pure profitable honey. Mr. *Watſon*, Chriſtians Charter.

XCII.

The young Bees as ſoone as they have paſt their ſecond birth, and tranſmuted their ſhape and qualities, and are winged and ſtrengthened to flie abroad, preſently fall to their worke, and imitate the elder Bees. And ſo doth the beleeving ſoule, as ſoone as it is borne againe, ſtrengthened and winged with grace from God, makes after him in workes of obedience, holineſſe and praiſes, imitates the examples of the Prophets and Apoſtles, as they have followed Chriſt. Let diſadvantages be what will be, you cannot keepe young Bees in the hive when once tranſmuted and winged, no more can you keepe the regenerate ſoule from working the workes of God, and with holy praiſes aſcending to heaven, when they are once under the line of Chriſts everlaſting love, and feele it ſhine mighty hot in them with full face, with perpendicular rayes, but with a preſent rapture make holineſſe their worke and Hallelujahs all their language.

XCIII.

Honey is gathered with much art from great variety of trees and flowers; and joy is a honey, a fragrancy made from above with much picking, chooſing, and compoſing.

XCIV.

Bees are neate ſweete and cleanly creatures, naturally abhorring ſtinking places and ſtrong ſenting herbes. It is true they gather of the flowers of ſome weeds which are bitter and offenſive, but yet the flowers are not (as Broome, Henbane, Mayweed) as your taſt and ſmell may informe you. But where the flowers participate of the ill ſent of the herbes they meddle not at all (as Gallopſia, Cheeſrunnet). And Chriſt puts no

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M. *Lockier*, Usefull instructions.

toades in his bosome (saith one) nor beleevers wicked men into the intimacy of their affections, puritie will bosome puritie, corruption cannot delight in uncorruption, Heterogeneals will not incorporate, light and darkneſſe are inconſiſtent, gracious and ungodly men cannot live and linke together. A good heart cannot with more pleaſure reſt it ſelfe then in Gods reſting place, in Chriſts ſocietie, in the way of the Spirit, in the Miniſtery of Angels, and fellowſhip of the Saints.

XCV.

In the Common-wealth of Bees all are employed, none are idle; The Commander directs and orders, the Drones are uſefull for procreation, and by their heate very inſtrumentall for the hatching of the young Cure, every one contributes ſomewhat to the publique good. And in the Bee-hive of the Church, there is no pretence for any man to be idle in the profeſſion of religion. Thou haſt not riches, thou canſt not give; thou haſt not place, thou canſt not ſhew countenance to others: but if thou beeſt a child of God, thou haſt the Spirit of prayer, the Spirit of adoption, the Spirit of a ſonne in thee, which enables thee to pray for thy ſelfe and others, there is no Chriſtian but he may doe this.

XCVI.

Bees though they freely act in all their undertakings, yet doe they all with reference to the publique, and in ſubordination to the Queene, whom they not only love, but after a ſort live in; for without her they will live no longer in their old habitation; not at all, except they get under the regiment of another. And this their Queene they delighfully ſerve and obſerve, her (ſilent) directions doe they readily comply withall; once, their carriage in and out of the hive is regulated and ſquared by a love of and awe unto this their Commandreſſe. And it ſhould be with beleevers after this manner, whereſoever we are, or whatſoever we doe in the world, our converſation here muſt be directed by a higher aſpect. The ſhip while it is toſſed in the Sea is ruled by the Pole ſtarre, that muſt guide it: So in our con-

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converſation in the world, the ſtaffe of our converſation may be the buſineſſe we have in the world, but the rule the regiment of all muſt be from heaven, with an eye to God.

XCVII.

A little honey is ſweet, much fulſome: ſuch is pleaſure, whoſe inſinuations are ſo cunning, that you ſhall not perceive your exceſſe, till you be ſick of a ſurfet. Dr. *Hall*, Decad. 4. epiſt. 2.

XCVIII.

Revenge commonly hurts both the offerer and ſufferer, as we ſee in the fooliſh Bee (though in all other things commendable, yet herein the patterne of fond ſpightfulneſſe) which in her anger invenometh the fleſh, and loſeth her ſting, and ſo lives a Drone ever after (indeed lives not long after) I account it the only valour, to remit a wrong, and will applaud it to my ſelfe as right noble and Chriſtian, that I might hurt and will not. *Idem* Med. and Vowes, 1. cent.

XCIX.

Haſt thou found honey, that is, haſt thou found the ſweetneſſe of a mans familiarity or converſation, eate that which is ſufficient for thee, that is, uſe his friendſhip or familiaritie to ſobrietie; not altogether withdrawing thy ſelfe, leaſt he forget thee; not yet too frequently viſiting, leaſt he loath thee; for it is better by ſeldome comming to make thy preſence deſireable, then by frequent viſits to make him weary of thee. Whereupon the ſon of *Sirach* ſaith, *Be not unſatiable in any daintie thing, nor too greedie upon meates:* but the words which follow make it cleare, *Withdraw thy foote from thy neighbours houſe, leaſt he be weary of thee, and ſo hate thee.* *Hugo Bard. poſtil in* Proverb. 25. 16. Eccleſ. 37. 29.

C.

Although Bees have ſmall ſtrength, yet have they great anger and inſatiable wrath, and when they violently purſue any, doe *Calvin Comment. in Pſal.* 118.

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doe not a little terrifie and affright them. Such is the pertinacious and implacable rage of the enemies of Gods people, that if God did not wonderfully ſtand by, interpoſe and ſupport them, they would unavoydably periſh: but they are quenched as the fire of thornes, which although it makes a great crackling noiſe in the beginning, and a greater flame then ſolid wood, yet is ſuddenly extinct and conſumed, ſo that in a word, though wicked men tumultuouſly ſet upon Gods people, their violence in a moment ſhall come to nothing.

THE

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THE SECOND CENTURIE.

I.

Emporall occaſions open the mines to digge out ſpirituall inſtruction: For Chriſtians may clime by the ſtaires of theſe inferiour creatures, to contemplate the glorious power of the Creator. A good Chriſtian like the Bee works honey from every flower; ſuffers no action, demonſtration, event to ſtep by him without a queſtion. All objects to a meditating *Solomon* are like wings to reare and mount up his thoughts to heaven. As the old *Romans* when they ſaw the blew ſtones thought of *Olympus*, ſo let every object, though low in it ſelfe, elevate our mindes to mount *Sion*. A meane ſcaffold may ſerve to raiſe up a goodly building; it was once ſaid, *Felix qui potuit rerum cognoſcere cauſas*; now better, *Felix qui potuit rerum cognoſcere caſus*. It is good to know the caſuall beginnings of things, it is better to know their caſuall ends It is good to be a naturall Philoſopher, but better to be a ſupernaturall, a Chriſtian Philoſopher, that whiles we intentively obſerve the creature, we may attentively ſerve the Creator.

Mr. *Adams*, Sinners paſſing bell.

II.

Some uſe flowers only for the beauty or the ſmell, the Phyſitians for health, but the Bees for honey. So doe wiſe and prudent perſons apply their ſtudies for the enriching and feeding of their mindes.

Mellificium ſimilem-Joach. Niſai.

III.

As a Spiders web is not therefore better becauſe it is woven out

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Lipſius in notis in lib. 1. Polit. c. 1.

out of her bowels; ſo neither is the labour of the learned more contemptible, becauſe as Bees, they gather much from others.

IV.

Conſider a Bee (out of a hive) as a ſolitary Inſect, and it is the moſt helpleſſe and ſhiftleſſe creature that is; If ſhe workes, alone ſhe cannot frame repoſitaries to lay up food; would ſhe breed, ſhe cannot both hatch the young and gather meate. Is ſhe aſſaulted with enemies, alone ſhe hath no defence nor power: Finally, ſhe cannot ſecure her ſelfe from any, much leſſe from the many evills and enemies whereto ſhe is obnoxious. And what is a man out of Chriſt? as a man in a ſtorme that hath no cloathes to hide his nakedneſſe, to cover him from the violence of the tempeſt. As a man in a Huricane, that is out of a houſe to ſhelter him, as a ſtone out of the foundation that is ſcattered here and there as neglected, as a branch out of the vine, without ſap and influence, ready to be caſt into the fire. A man out of Chriſt that is not cloathed with him, that is not built on him, that is not grafted into him, is a deſtitute forelorne and neglected wretch.

V.

The weakeſt creatures have the ſtrongeſt ſhelters. Bees have hives and hollow trees to ſecure them; thus weakneſſe occaſionally is a helpe, for conſcience of weakneſſe makes all creatures ſeeke for ſupply out of themſelves. So the Conies (as *Agur* ſaith) hide themſelves in the rock, they flie to their burroughs; and the Bees to their hives. Man is a weake creature in himſelfe, weake in judgement, weake in affection, but the conſciouſneſſe of our weakneſſe ſhould make us ſeeke for ſtrength out of our ſelves, goe to God in Chriſt, and then he is a kinde of almightie man. *I can do all things* (ſaith the Apoſtle) *in Chriſt that ſtrengthens me.* A Chriſtian is omnipotent if he depend upon the promiſe, and commit his wayes to God, but he is impotent and weake in himſelfe, it is God therefore that muſt eſtabliſh us.

VI.

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VI.

Gnats in numerous multitudes (like clouds) doe nothing but play up and downe in the warme Sunne and ſing; and when they have done ſit downe and ſting the next hand or face they can ſeize upon; ſee here a perfect Embleme of idleneſſe and detraction: how many doe thus miſerably ſpend their good houres? who after they have waſted the ſucceeding dayes, in vaine and meerely unprofitable paſſe-time, ſit downe and backbite their neighbours. The Bee ſings too ſometimes, but ſhe workes alſo; and her worke is not more admirable then uſefull; but thoſe fooliſh flies doe nothing but play and ſing to no purpoſe: Even the buſieſt and moſt active ſpirits muſt recreate, but to make a trade of ſport is for none but laſie wantons. The Bee ſtings too, but when ſhe is provoked, theſe draw blood unoffended, and ſting for their owne pleaſure. I would be glad of ſome recreation, but to enable and ſweeten my work. I would not but ſting ſometimes, where is juſt cauſe of offence; but God bleſſe me from thoſe men, which will ever be doing nothing or ill.

Dr. *Hall*, Occaſionall Meditat.

VII.

The Commandreſſe of the Bees is a Queene, a royall creature, and therefore ſhe workes not, it is beneath her dignitie to drudge and toile as the meaner ſubject, ſhe flies ſeldome abroad, communicates little with the world; ſtate procures reſpect and honour to eminent perſons. Though ſhe hath a ſting, yet rather as an Enſigne of power, then an inſtrument of revenge, for ſhe never uſeth it. It is the property of a baſe and dunghilly ſpirit to be vindicative. If I be a Chriſtian, I am a King, ſhall I debaſe my ſelfe in ſinfull practiſes? ſhall I caſt my crowne in the dirt? God hath raiſed me, and made me an heire of heaven, ſhall I abaſe my ſelfe to ſin, and to baſe luſts? (the Devills drudgery) ſo that I cannot rule my owne members, and yet profeſſe my ſelfe to be a King? When we are tempted to ſinne, and to baſe courſes, let us ſay as good *Nehemiah*, when he was moved to flie, *What ſhall ſuch a man as I flie?* ſo ſhould we

Dr. *Sibbs*, com. in 2 Epiſt. ad *Corinth.* c. 1. v. 22.

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we ſay to any temptation, to baſe courſes of life, what ſhall ſuch a man as I doe this? For a Chriſtian that is a King, that hath a guard of Angells about him, that is the moſt excellent creature in the world, for him to abaſe himſelfe to the world. He that is bred from heaven, for him to have no higher thoughts then the things below, to have an earthly minde or revengefull thoughts, is a ſhrewd preſumption, that he is only a titular Chriſtian, and hath not received the inward and ſpirituall anoynting.

VIII.

All is one to God to make an Angel or a Bee, to create the brighteſt Cherub, or the moſt contemptible flie; for in every creation, no leſſe then an omnipotency muſt be the efficient, and no more then nothing is ever the object.

IX.

If the Queene-Bee be ſlaine, or any wayes miſcarry, the whole hive is overthrowne: but if ſhe be ſafe, though they have weaknings, meete with injuries, ſuffer from enemies, yet they will recover themſelves and out-grow other dangers. A mans darling ſin is Satans ſtrongeſt hold, whither, when by the power of the word he is diſlodged out of other parts of the ſoule, he retires as to his moſt impregnable Caſtle; but if in this he be over-powred by the bleſſing of God on the word of his Goſpell, then is his dominion ſhaken, and the man driven to a deepe deteſtation of himſelfe, throwne downe to the loweſt ſtep of a penitent dejection, he is inegered with thirſty greedineſſe for pardon and grace, and at length forced out of his naturall eſtate.

X.

Bees in their private quarrells are patient and regardleſſe, they neglect and ſlight perſonall injuries; but if their hives be aſſaulted, their Common-wealth beleagered or endangered with Waſpes, robbing Bees, or other enemies, they luſtily beſtirre

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ſtirre themſelves, fight it out to the death: whereas the Drones as they watch againſt no danger, ſo they reſiſt none, but love to ſleepe in a whole skinne, letting all goe at ſix and ſeven (as they ſay:) like lazie paſſengers in a dangerous leake, will not lay hands to the Pumpe, and yet muſt miſcarry with the ſhips deſtruction. And are not moſt men in the world Drones not Bees? affected perhaps with their owne troubles or reproaches, but ſilent and ſloathfull in Gods cauſe and truth, then they are loath to ſtirre fearing hatred, trouble, obloquie among men. If their owne reputation be called in queſtion, it will not a little ſtartle them, but if Gods name be blaſphemed, his word traduced, his ordinances violated, the courſe of the Goſpell be ſtopped, in the freedome and libertie whereof is the Churches happineſſe and glory, and the failing of it the deſtruction of a people. Yet they are little affected, it goeth not to their hearts, they keepe ſilence as if this of all other things did leaſt concerne them. When *Jehu* approached neare unto *Jezabel*, and eſpied her in her window, after the faſhion of harlots; he cryes out to them with her, *Who is on my ſide, who?* and the Eunuches threw her downe. The Lord ſeemes ſometimes thus to ſay to us in the extremities of the Churches affliction, and he ſeemes to cry to us, who is on my ſide? If then thou be ſilent, that which our Saviour hath, will be here applied, who is not for him is ſure againſt him, and ſo ſhall be accepted in the day of accounts.

Dr. *Sclater*, Com: on *Mal.* c. 3. v. 16. 2 King. 9. 32. Mat. 12. 30.

XI.

Waſpes and Hornets are very noyſome creatures, and therefore we ſeek their deſtruction, Nay burne up neſts and young, and that before they have injuried us or ours, only becauſe we know, what they would doe, if they be ſuffered to live and flie abroad. And ſhall poore Mortals thinke it much, if God who knowes our thoughts a farre off and the principles within us, and what men would doe if occaſion be offered, which for the preſent they know not of themſelves, as *Hazaels* anſwer to *Eliſha* imports, *Thinkeſt thou*, &c. No wonder if the Lord cuts off many in their youth and infancy, becauſe he knowes their nature, that they would doe this and this. Such paſſages of his providence there may be, as to cut off children and young men

2 King 8. 13. Dr. *Preſton*, Gods Immenſitie.

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out of the foresight of the evill that they would doe to his Church, because he knowes their thought a farre off.

XII.

The Drones are alwayes idle, observe them as often as you will, and you shall never find them carefully endeavouring their present or future good. Bees, though laborious creatures, yet if you come to the hive in winter, especially in extreame frosts and colds, are shut up, none appeare, or if in a warme day they flie a little abroad, yet they bring nothing home, contribute nothing to the publique treasury, they then seeme to be as careless and as thriftless as the Drones. But the Drones are constantly idle, and therefore at all times you find them alike careless; come this day and you see them to gather nothing, and come another time and you find them gathering nothing. But the Bees though they be sometimes hindred for want of the externall favour of the heavens that they cannot gather, as in the winter time. Yet when the Sunne returnes in the Spring, and the plants and trees begin to put on their Summer roabes, and the heavens are cleare and smile upon them, then they diligently follow their delightfull labours. Vigorous and spiritfull actions are not alwayes infallible characters of life; a man may be a living man and yet in a swoone, no action left in him: a man may be a living Christian, and yet be in some deficiency of spirit, and in some swoone, his spirits bound up and not in case for action alwayes in any kind; so that actions are not sure characters of being in the right way to true happinesse. For a godly man may be like a tree which may have life in it, when it hath neither fruit nor leaves upon it, as in the winter time; but in another season, they are more or lesse fruitfull, for the Bias of their soule is set to God-ward, and to heaven-ward, and though it may by a rub be put out of it's course, yet because the qualification of their soules are heavenly, their affections are changed and turned, they will be exercising themselves in spirituall duties: whereas wicked men in whom is no change of heart, are never heaven-bound; they may pretend it sometimes and make faire shewes and promises, as the Drones in a faire day flie abroad with many a circling motion, and a great humming

Dr. *Stoughton*, Righteous mans plea to true happinesse.

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ming noiſe; but obſerve them, it it not to add to the publique ſtore, but that they may with better ſtomacks devoure the Bees labours. Thus the Phariſees performed many duties, made long prayers, but to devoure widowes houſes.

XIII.

Every drop of honey is honey, and has the nature and definition of the whole, it is throughout like to it ſelfe; ſo our felicitie above is homogeneall, heaven is all heaven, every corner of heaven, is a heaven; every thing that is taſted a heaven; every thing that is ſmelt a heaven; every thing that is looke upon or meddled with, a heaven, a full felicitie to the ſoule.

XIV.

Bees are temperate feeders, but when they are violently robbed of their honey, or forced from their hives, they will then eagerly and glutton-like fill themſelves, and ſcarce give over without ſmoaking or much diſturbance: Now they are like to loſe all which they had painfully laboured for, and charily ſhut up with waxen covers, as under lock and key, till a time of ſcarcitie; And they reſolve therefore to have a ſhare before all be gone. And thus many wicked men, having had by legall terrours a fore-taſt of hell-fire before their time after their deliverance, grow a great deale worſe, and knowing their time to be but ſhort, fall on earthly delights more furiouſly, and graſpe the pleaſures of the world with more greedineſſe and inſatiable importunitie.

XV.

A Bees ſting eaſily enters in, and when the Bee is flowne away, yet the ſting remaines and workes it ſelfe with more violence deeper, diffuſing thereby the venome more ſtrongly, and cauſing greater dolour and paine; and the longer it continues, with more difficulty is it at laſt extracted: ſo that no man that knows the danger, except he have the perfection of a mad man, would run the hazzard of the anguiſh by delaying to pull it out.

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And ſuch is ſinne, it eaſily pierceth the ſoule, and when the tempter is gone, yet once intertained, it eaſily winds it ſelfe further in; And having the plea of continuance and cuſtome will not be eaſily ſhaken off: ſhall a Blackmore change his skinne, or a Leopard his ſpots in three or foure dayes, which they have contracted in twenty or thirtie yeares. Oh no, but (as a late learned and holy Divine obſerveth) the longer thou puts it off and deferreſt, the more unfit thou ſhalt be to repent; thy cuſtome in ſinning will exerciſe more tyrannie over thee, the curſe of God for going on ſtill in thy treſpaſſes will be more heavy on thee; The corruption that lurked in thy owne boſome will be more ſtrong againſt thee; Thy underſtanding will be more darkened with hellish miſts of ignorance; Thy judgement more perverted; Thy will more ſtubborne; Thy memory more ſtuft with ſenſuall motions; Thy affections more rebellious; Thy thoughts more earthly; Thy heart more hardened; Thy conſcience more ſeared, and thy ſelfe more ſould to ſinne, And every day thou continueſt in this eſtate of darkneſſe, thou art much more the child of Satan then thou waſt before.

Mr. *Bolton*, Inſtruct. for comf. afflict. conſc.

XVI.

Bees have many enemies, the Mouſe, the Waſpe, the Spider, beſides robbing Bees their worſt enemies; it is no wonder then if they keepe a continuall guard, leaſt they ſhould be ſurprized, and examine every one that goes in and out, and are preſently in alarmes upon the leaſt motion or diſturbance; their ſafety and well-being lies at ſtake. A beleevers condition is obnoxious to dangers, very liable to temptations, and ſhall we not walke circumſpectly, and ſtand alwayes upon our defence? We are naturally ſubject to ſo many batteries and breaches, by the aſſaults of Originall ſinne, and other implacable enemies to our ſoules, that there is extreame need of perpetuall watch and ward, of repenting and repairing dayly, leaſt the new man be too much oppreſt, and be often ſurprized with the many and cunning encounters of the old *Adam*. The conſideration of this ſhould prevaile much with us, to ſet a dayly guard about our ſoules *David* was very watchfull, yet he was ſurprized unawares by the ſudden rebellion of his heart. We ſhould therefore

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fore observe our hearts, as Governours doe rebells and mutinous persons. We see to what an excesse sin growes in those that denie themselves nothing, nor will be denied in any thing, who if they may doe what they will, turne all libertie into license, and making all their abilities contributaries to the commands of over-ruling and over ruly lusts.

XVII.

What a pitie it is to see these profitable industrious creatures fall so furiously upon each other? and thus stinging and biting kill each other in the very mouth of the hive. I could like well to see the Bees doe this execution upon Waspes, enemies to their common stock, this favours but of justice; but to see them fall foule upon those of their owne wing, it cannot but trouble their owner, who must needs be an equall loser by the victory of either. There is no more perfect resemblance of a Commonwealth, whether civill or sacred, then in an hive: the Bees are painfull and honest compatriots, labouring to bring waxe and honey to the maintenance of the publique state; the Waspes are unprofitable and harmfull hang-bies, which live upon the spoyle of others labour, whether as common Barrettours, or strong theeves, or bold Parasites, they doe nothing but rob their neighbours. It is an happie sight when these feele the dint of justice, and are cut off from doing further mischiefe, but to see well affected and beneficiall subjects undoe themselves with duells, whether of law or sword, to see good Christians of the same profession shedding each others blood upon quarrels of religion, is no other then a sad and hatefull spectacle, and so much the more, by how much we have more meanes of reason and grace to compose our differences and correct our offensive contentiousnesse. Oh God, who art at once the Lord of Hostes and Prince of peace give us warre with spirituall wickednesses, and peace with our brethren. Dr. *Hall*, Occasionall Meditat.

XVIII.

Creatures have their instincts, there is a naturall instinct in every creature to that seeds it; Bees goe naturally to the flowers

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ers by an instinct; so the spirituall soule that hath the life of Christ, runnes to whatsoever may feede and maintaine that life. All the creatures as soone as they are borne, runne, they know whither to goe to suck, because that is ordained by nature for their preservation; so there is an instinct in the soule to carry it, to that that feedes and maintaines it.

XIX.

Let a swarme be hived never so orderly, and the hive beforehand rub'd and prepared carefully, let it be covered and shadowed from the Sunne, and in a word, in the best manner accommodated, yet if the Queene-Bee be wanting, there is nothing but discontent, confusion, and hurly-burly, and after a hopelesse search, a finall departure. Whereas a meane habitation with her presence will give full content and satisfaction. Had we a Magazine of comforts, were we possest of heaven it selfe, with all it's glory without Christ, yet heaven without him would not be heaven. It is better therefore to be in any place with Christ, then to be in heaven it selfe without him; all delicacies without Christ are but as a funerall banquet when the Master of the feast is away, there is nothing but solemnesse: what is all without Christ? I say the joyes of heaven are not the joyes of heaven without Christ, he is the very heaven of heaven.

Dr. *Sibbs*, St. *Pauls* straite.

XX.

Bees by a naturall sagacity can foretell a storme, yet sometimes are they overtaken with unseasonable and rainie weather, but then doe they hie themselves apace homeward, getting under the Lee-side of a hedge, and at last secure themselves in their hives: but as soone as the tempest is over, and the Sunne breakes out they are abroad againe, forgetting their former danger. Many men in their outward crosses and afflictions, while the storme and tempest of Gods wrath beates sore upon them, run to God as their rock, and enquire early after him, but when once a hot gleame of former health and prosperitie shines upon them againe, they hie as fast out of Gods blessing into

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into the warme Sunne (as they ſay) from ſorrow, to ſin, to delight in ſenſuality, from ſeeking God to ſecurity in their old wayes.

XXI.

He that goes about to cure the wound of his conſcience for ſinne, with ſenſuall delight; doth as one that is ſtung with a Waſpe, and rubbes with a nettle the ſmarting place.

XXII.

As Bees when they are once up in a ſwarme, are ready to light upon every bough, ſo rebels being riſen up by the commotion of ambitious leaders, are apt to follow every *Sheba*. It is unſafe for any State that the multitude ſhould know the way to an inſurrection, the leaſt tract in this kinde is eaſily made a path.

XXIII.

As *Jonathans* honey was ſweet in the mouth, but bitter in the ſoule; for behold his honey was turned into gall. And if the eyes of his body were enlightened, the light of Gods countenance was clouded by the act: So is it with every ſin, for though ſtollen waters be ſweete, yet he knoweth not that the dead are there. Dr. *Hall*, Contemplat. lib. 12.

XXIV.

It is obſervable in the old Law, that God hated the very reſemblance of the ſinne of pride, he would have no honey mingled in their offerings; *Ye ſhall burne no leaven, nor any honey in any offering of the Lord made by fire.* Indeed Leaven is ſowre, but what is there in honey that ſhould offend? why no honey? becauſe honey when it is mingled with meale or flower, maketh it to riſe and ſwell; Therefore the people of *Iſrael* muſt mingle no honey in their offerings: this was to let us ſee how God hateth the reſemblance of the ſinne of pride. Levit. 2. 11. Mr. *Watſon*, Chriſtians Charter.

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XXV.

Some Bee-Masters will be over-diligent to kill the Drones, because sometimes when they are supernumerary, they will not only pester but prejudice the hive; and at other times deceive the expectation of so large a tribute as they looke for from them: and yet in the meane time are negligent, or not sufficiently carefull to prevent the devouring Waspes or robbing Bees, which in a few dayes will consume more then the Drones in a whole Summer. Bee-Masters ought to be carefull about the former, but most of all of these, because of that ruine and desolation that is quickly occasioned by them. As a Shepheard should watch his lambes from flies, but most of all from Wolves and Foxes: Sure he is but a sorrie Shepheard, to kill the maggots in his sheepe, and let the former worry at pleasure. And surely (saith one) he is a sorry Magistrate, that stocketh and whippeth and hangeth poore snakes when they offend (though that is to be done too) but letteth the greater theeves doe what they list, and dareth not or careth not to meddle with them. Like *Saul*, who when commanded to destroy all the *Amalekites*, both man and beast, slew indeed the Rascality of both, but spared the greatest of the men and fattest of the cattell, and slew them not.

Mr. *Sanderson*, Ser. on *Job* 29. 14.

XXVI.

Mothes are supposed to be offensive to the Bees; sure I am, if the Bees be few they will breed their blots in their combes, and quite spoyle them, and thereby force those few to desert the hive; for remedy whereof it is prescribed by some to smoke the combes, and so to expell and chase them away. Which practice mystically informes Magistrates, that if they would be rid of those Mothes and Gnats that swarme about the Courts of Justice, and will be offering to buzze at their eares false reports of their brethren, they should cashiere and smoke them away. Magistrates should doe well therefore to begin reformation at home, and if any of them have a servant that heareth not well deservedly, to put him away out of hand, and to get an honester in his Roome.

XXVII

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XXVII.

Bees, though chilled and dead with cold, or drowned in water, if in a convenient ſeaſon they be laid neare the fire, or in a hot Sun-ſhine, will revive after a while, and recover as if they had never miſcarried. For there is ſome hidden though undiſcerned life, and by the ayde of that little remainder of vivifying power (which was more ſtrong originally, and is not yet totally extinct) now further called forth and wrought upon by adventitious heate, there is a new quickning and life. So by the awaking of the North wind and coming of the South, I meane the bleſſed Spirits breathing upon a regenerate heart, ſtifled dangerouſly with ſome peſtilent luſt, by ſtirring up and refreſhing the retired and radicall power of grace, that immortall ſeed of God never to be loſt, will ſweetly and graciouſly bring it againe to it's former ſpirituall comfortable temper and conſtitution. * The Lords choſen may fall from their outward prerogatives, and from the fruits: but that divine nature ſtill abideth in them: and it is only with their grace, as it is with the mind in diſtempers of Melancholie and Phrenſie; with the Sunne in Eccliſes; with the tree, when leaves and fruit faile it; with the naturall life, when it moveth not, nor yet breatheth ſenſibly, which in diſeaſes of the Mother is often diſcerned.

* Dr. *Holland* Divinitie profeſſor in *Oxford*. Moderating in this queſtion holden negatively, *An juſti fides poteſt ad tempus amitti, aut finaliter deficere.*

XXVIII.

The ancients preſcribed (as for other cauſes ſo for this alſo) to ſtop up the hives every third day; that the Bees might when they were ſet at libertie, with greater earneſtneſſe and delightfull diligence ply their labours. And we find by experience, when they have been a while ſhut up and impriſoned by unſeaſonable weather, they follow their worke more eagerly, on the firſt opportunitie (as a ſtreame ſtopt for a little while, will breake out with greater violence after) they will now loſe no time, but be at their labours both more early and late, then when they were not kept in; Nay in ſuch weather when (had they not been reſtrained before) they would have laine ſtill aſleepe in the bed of eaſe in their hives. Sometimes the Lord

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Mr. *Bolton*, Inſtruct. for comf. afflict. conſc.

may for a time retire the light of his countenance, and ſenſe of his graces from his children, for triall, quickning, and exerciſe of ſpirituall graces, that they may put forth themſelves with more power, improvement, and illuſtriouſneſſe: the cold comfort of a diſertion in this caſe, being unto them as water caſt upon the Smithes forge, to make ſome of them eſpecially to burne inwardly as it were in the meane time with new intention and heate, to breake out and flame more gloriouſly: there are many gracious diſpoſitions and indowments in the Chriſtians heart, which would never ſee the light, at leaſt with ſuch eminency, were it not for this darkneſſe: the brightneſſe of lampes languiſh in the light but they burne cleare in the darke: the ſplendor and beauty of the Saints, would never appeare were there no night.

XXIX.

Bees troubled a while at the hive will be very angry, and by and by very numerous, and ſo unreſiſtible, for their fury and their numbers increaſe together; perhaps but a few at firſt aſſault you, but being much oppoſed, they call out many partakers, and in a little time a few will prove a multitude: as rivers grow greater and greater, the further they are off from their ſprings, the more they enlarge their channels untill they emptie themſelves into the Ocean. Stormes we know ariſe out of little guſts. The firſt riſings of ſin are to be look't unto, becauſe there is moſt danger in them, and we have leaſt care over them: corruption till it be over-powred by grace, ſwelleth bigger and bigger, ſo that like ruſt it will by little and little eate out all the grace of the ſoule. There is no ſtaying when we are once downe the hill, untill we come to the bottome. When the heart begins once to be kindled, it is eaſie to ſmoother the ſmoke of paſſion, which otherwiſe will fume up into the head, and gather into ſo thick a cloud, as we ſhall loſe the ſight of our ſelves, and what is beſt to be done. Cruſh therefore the firſt inſurrections before they come to breake into open rebellions; little riſings neglected cover the ſoule, before we are aware, ſtifle them in their birth, ſtop the beginning, and ſo ſoone as they begin to riſe, let us begin to examine who raiſed them, and whither they are about to carry us.

Dr. *Sibbs*, The Soules conflict.

XXX.

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XXX.

The Bee never ſtings, but payes the price of it with her life. By this God inſtructs us, that we ſhould not wrong our neighbours, for we our ſelves ſhall if not firſt yet worſt ſuffer, and they perhaps receive little or no prejudice, but we ſhall be as ſure as the Bees to dye for it. And yet the ſonne of *Syrach* praiſeth that creature, ſaying, *The Bee is ſmall among fowles, and her fruit hath the beginning of ſweetneſſe.* But this gives her no ſecurity to eſcape death, if ſhe ſtings ſhe muſt periſh; And if her many excellencies will not exempt or free her from deſtruction if ſhe doth ill, much leſſe ſhall we. We are moſt ſavage beaſts, we firſt wrong our neighbours, who never injuried us; Nay we are farre worſe in this reſpect then Bees; For if you ſuffer them to live in their hives, and by moleſting and vexing of them put them not upon a neceſſitie of defence, they will never hurt, never injure, never ſting, but goe their wayes and follow their buſineſſe. But thou who art a reaſonable man, dignified with ſo much honour and glory imitates the beaſts, and that towards thoſe that are of the ſame ranke with thee; wrongeſt, hurteſt, devoureſt thy brother; what ſaith *Paul*, *Why doe ye not rather take wrong? why doe you not ſuffer your ſelves to be defrauded, nay you doe wrong and defraud, and that your brethren.* You ſee then you wrong your ſelves, when you wrong others, and that you receive a courteſie when you are injuried.

Chryſoſt. com. in Epiſt. 1. ad Theſſ. c. 5.

1 Cor. 6. 7.

XXXI.

Bees will not continue in a ſtinking or impure hive, and therefore they that delight in them prepare the ſtooles where they ſet them with perfumes, ſweet ſmelling boughs, and fragrant flowers, and other delightfull things, whereon the Bees when they goe forth of the hive may light, leaſt ill ſavours ſhould force them to forſake their ſtations. And thus deales the holy Spirit, our ſoule is the hive, accommodated and furniſhed with ſweet ſpirituall gifts and graces, but if there be bitterneſſe and anger and wrath, he will forſake ſuch hives. And therefore the bleſſed

Ejuſdem. com. in Epiſt. Pauli ad Epheſ. c. 4. t. 4.

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bleſſed and wiſe husbandman (namely, St. *Paul*) doth endeavour to trimme and prepare our hives (our ſoules) and that without knife or any other iron inſtrument; And calls us a ſpi-
Epheſ. 4. 30, 31. rituall Bee-fold, which yet he firſt purgeth with prayers, with labours and all other things neceſſary hereunto.

XXXII.

Ejuſdem Com. in Pſal. 115. 4. 1°. Bees with their ſwift and nimble wings fly from flower to flower, and draw out the latent native ſweetneſſe with a harmleſſe unprejudiciall robbery, that therewith at length they may provide and afford ſweet honey for the ſonnes of men: So the Miniſters of the Goſpell are ſollicitouſly carefull with the light wings of meditation, to light on the pleaſant and delightfull gardens of the Scriptures, that they may pleaſingly inſtill and drop in the ſweet honey of faith into the hearts of their hearers.

XXXIII.

Bees prepare their food in Summer, they borrow not, they beg not, but exerciſing their naturall endowments, are diligent in labour, and that without force or compulſion, and never give over while the weather and ſeaſon ſerveth. And although they be weake and ſmall creatures, yet with their nimble wings flie through the vallies, and over the mountaines, the woods and forreſts, though ſome miles remote and diſtant from their habitations, gathering of every profitable tree and flower, and not only the elder but the younger alſo. And are images herein of and patternes to thriftie houſholders, who diligently labour themſelves and excite and encourage all theirs from their youth to provide for future; ſecondly, their great prudence appeares in underſtanding the ſeaſons for their gathering, providing in the Summer againſt winter, for if weather would give leave, they ſhould in vaine ſeeke for honey in the winter; thirdly, ſo great is their ſedulity and diligence, that they are not altogether idle in the night, but then trimme their hives by biting off the ſtaring and offenſive ſtrawes, eating downe their rotten combes where there be any, pulling forth their dead ſpet which they

carry

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carry forth in the day, hatching their young, and probably feeding of them: fourthly, their justice, they rob not those that are laden, but each gathers for her selfe and all the rest, for they are politicall: fifthly, their astrologie in foreseeing change of weather, when they will not venture farre from their hives: sixthly, this is also praise-worthy and imitable, that they carry forth their dead to buriall, and not only the Pismire as *Franzius* affirmes.

Franzius hist. animal tract. 4. c. 14.

XXXIV.

Waspes are bold and sawcie, whatsoever fruits, flesh, plummes, sweet meates you have, they will impudently intrude, and if they be not prevented carry away a portion. And such are troublesome and vaine thoughts, crowding into our best and most religious services. *Abraham* must drive away the birds from the sacrifices, and we must continually watch against vaine and evill thoughts, which will alwayes come before they be sent for, but let them find entertainment accordingly.

Gen. 15. 11.

XXXV.

If nature teach Bees, not only to gather honey out of sweet flowers, but out of supposed bitter; shall not grace teach us to draw even out of the bittereſt condition something to better our soules.

XXXVI.

Bees are affected with a deep degree of love to their Leader, with whom (having nothing) they esteeme themselves happie; but without her (in the greatest plenty and fullnesse) are full of perplexitie and trouble. If she goeth forth of the hive, they (leaving house, children, goods) follow after, and stay where she abides; If she being weary and faint fall by the way, they will encompasse her, stay with her (and returning no more to their forsaken full-stored hives) starve with her, rather then leave and desert her. This ardent love and affection planted in them by nature, eates up and devoures all other desires, and over-

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over-eager delights in any contentments as worthleſs and emptie. So that the Sun-flower doth not more naturally turne towards the Sunne, and the iron to the Load-ſtone, and the Load-ſtone to the Pole ſtarre, then the domeſtick honey-Bees embrace and affect the Queene-Bee. And a beleeving ſoule is as much nay more deeply and dearely enamoured of her beloved, advancing Jeſus Chriſt higheſt in his thoughts, and prizing him farre above the pleaſures and profits and glories of the whole world; he ſo ſets his eye and longing upon him, as to hold himſelfe for ever loſt without his love, and for the gaining of it if need were would he paſſe through a peece of hell. Thus are the current of his beſt affections and all the powers of his humbled ſoule bent and directed towards him. He vowes and gives up the flower and prime of all his abilities, loves, joyes, endeavours, performances in any kind to his higheſt Majeſtie. He conſecrates all the powers and poſſibilities of body and ſoule to doe him the beſt and utmoſt ſervice he can any wayes deviſe, and ſtill grieves and walkes more humbly, becauſe he can doe no better ſervice.

XXXVII.

Bees worke all in common, feed in common, breed up their young in common: Each provides for his fellow as for her ſelfe, every one is affected and ſympathizeth in a common danger, as if it were her owne alone. In a word, each doth fight with undanted reſolution, in the defence and preſervation of her fellow, as if it were her own particular injurie. How many baſtard-Chriſtians are there that ſympathize not with their brethren, whoſe hearts are neither enlarged with lightſomneſſe, nor yet ecclipſed with griefe, as they heare of the proſperitie or oppreſſion of Gods people. Pitileſſe and hard-hearted *Canniballs*, who all this while ſo many noble limmes of that bleſſed body of the reformed Churches have laine in teares and blood, did never take to heart, to any purpoſe, or trouble themſelves at all with their grievous troubles, but have ſottiſhly and ſecurely laine at eaſe in *Sion*, not helping the people of God ſo much as with a hearty fellow-feeling, wraſtling with God in prayer, ſet dayes to ſeeke the returne of Gods face and favour, men they

Mr. *Bolton*, Inſtruct. for comf. affl. ct. conſci.

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they are of the world, which have their portion in this life, who feele nothing but worldly losses, know nothing but earthly sorrowes, relish nothing but things of sense. If they be stung with a deare yeare, they howle and take on immoderatly: but let *Joseph* be afflicted, Gods people in disgrace, the daughter of *Sion* weep bitterly, and have none to comfort her, these merciless men are no whit moved, they have not a teare, a groane or sigh to spend in such a wofull case.

XXXVIII.

Wasps are very dangerous enemies to Bees, being bold and strong, they will first prey on dead Bees, which they divide and carry by halves to their nests; but they quickly proceed further and venture into the hives, and rob the combes, and will after come with such numbers that they will destroy the whole stock, unlesse they be timely prevented, which must be done not so much by observing and killing them neare their hives, but finding out their nests, and destroying them altogether. For the subduing of our selves it is good to follow sin to the first hold and Castle, which is corrupt nature, the streames will lead us to the spring-head: indeed the most apparant discovery of sin is in the outward carriage, we shall see it in the fruit before in the roote; as we see grace in the expression before in the affection, but yet we shall never hate nor subdue sin throughly, till we consider and fight against it in the poysoned root from whence it ariseth. It is a good way upon any particular breach of our outward peace, presently to have recourse to that which breeds and foments all our disquiet: Lord, what doe I complaine of this my unruly passion, I carry a nature about me, subject to breake out continually on any occasion. Lord strike at the roote, and dry up the fountaine in me, for otherwise, though the streames were stopt, and the branches cut off, and the sparkles quenched, yet there would be a perpetuall supply, as long as the poyson-full roote remaines.

Dr. *Sibbs*, The Soules conflict.

XXXIX.

Many Bees (especially when the gathering season is over,

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and the ſtate of flowers decayed, about *Auguſt* will be curiouſly prying into their fellowes hives: at firſt a few give the onſet, and if they be let alone unreſiſted, or weakly oppoſed, then they double and treble their forces, fetching at their returne more of their companie, and violently make a prey of all. But if theſe ſcouts and ring leaders, as they preſſe in be beaten out, roughly intertained, and ſtoutly oppoſed and fought withall, they will then by degrees deſiſt, and at laſt quite give over. Vaine and wicked thoughts, if men give way unto them without checking the motions of them, will preſſe (as buſily as flies in Summer) into the heart, but a good heart will not owne them, nor allow himſelfe in them, but ſtands at ſtaves end with them, caſts them off as hot water doth the ſcumme, or as the ſtomack doth that which is noyſome unto it. They find not in it that intertainment which they have in carnall hearts, where the ſcumme ſeeths in, which are ſtewes of uncleane thoughts, ſhambles of cruell and bloody thoughts, exchanges and ſhops of vaine thoughts, a very forge and mint of falſe politick and undermining thoughts, yea often a little hell of confuſed and black imaginations.

XL.

Dr. *Hall*, Occaſionall Meditat.

See you that narrow mouthed glaſſe which is ſet neare to the hive, marke how buſily the waſpes and flies reſort to it, being drawne thither by the ſmell of that ſweet liquor wherewith it is baited; ſee how eagerly they creepe into the mouth of it, and fall downe ſuddenly from that ſlippery ſteepineſſe into that watry trap from which they never riſe; there, after ſome labour and wearineſſe they drowne and die; you doe not ſee many of the labouring Bees looke that way; they paſſe directly to their hives, without any great notice taken of ſuch a pleaſing baite. Idle and ill diſpoſed perſons, are drawne away with every temptation, they have both leaſure and will to entertaine every ſweet allurement to ſin; and wantonly proſecute their owne wicked luſts, till they fall into irrecoverable damnation: whereas the diligent and laborious Chriſtian, that followes hard and conſcionably the workes of an honeſt calling, is free from the danger of theſe deadly enticements, and layes up honey of com-

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comfort againſt the winter of evill: happie is that man who can ſee and enjoy the ſucceſſe of his labour, but how ever, this we are ſure, if our labour cannot purchaſe the good we would, it ſhall prevent the evill we would avoyde.

XLI.

A Bee ſtinging a dead body takes no hurt, but ſtinging a live body loſeth both ſting and life together. In like manner, death ſo long as it ſtung mortall men only, which were dead in ſinne was never a white the worſe, but when it ſtung Chriſt once who is life it ſelfe, by and by it loſt both ſting and ſtrength. Therefore as the Brazen Serpent was ſo farre from hurting the *Iſraelites*, that contrariwiſe it healed them; after the ſame ſort death is ſo farre from hurting any true *Iſraelite*, that on the other ſide, if affliction as a fiery Serpent ſting us, or any thing elſe hurt us, it is helped and redreſſed by death. Dr. *Playfere*, The meane in mourning.

XLII.

That honey is ſweete, it is not a conceit only, but the naturall qualitie of it is ſo; yet out of a taſt of the ſweetneſſe, to thinke we cannot take too much of it is a miſconceit paid home with loathſome bitterneſſe; though our fancy be readie to conceive a greater bleſſing in outward good things then indeed there is, yet we muſt not deny them to be bleſſings.

XLIII.

Bees when they are abroad at their worke, if the clouds overcaſt, the ayre grow darke, there be any prelude of a ſtorme, which they are very ſenſible and apprehenſive of, ſpeedily and in haſt, thick and threefold repaire to their hives for ſhelter and ſecurity. And beleevers never pray ſo heartily, deny themſelves ſo throughly, cling ſo faſt to God, as when a ſtorme is towards, or when they are overtaken by a tempeſt of perſecution.

XLIV.

Bees are not querulous complaining or diſcontented crea-

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tures, for when they have with many a ſore dayes labour and heavie burden filled their hive, and thereby furniſhed themſelves againſt a winters want: yet if they be driven and robbed of all, have left neither meate nor materialls to put in any, yet will, if the weather ſerve, ſpeedily and chearefully renew their labours, and with double diligence ſeeke out for a future ſupply. And ſhall beleevers thinke much to ſuffer the ſpoyling of their goods, all that they have travelled and ſweat for, and when they have by many a deare dayes labour got a little ſomwhat together, then to be ſpoyled of all in a moment, ſeeing Heb. 10. 34. they know they have in heaven a better and more endureing ſubſtance.

XLV.

When the worme dyes, which is a more imperfect creature, then it revives againe, but is quite another from what it was before in every part and member: before it was unable to act for it's owne preſervation, or the good of others, could not move out of it's place; in a word, doe nothing but eate what was brought unto it; but after a tranſformation and renovation, it is agill and active, laborious and profitable. And in the new birth, *ſi licet parvis componere magna*, there muſt be a mortification of the old man, and then an univerſall change and alteration in the whole man. For a new Spirit is univerſall, it goes through the whole man, leavens the whole lumpe, the new nature is common to all the powers, not like a little ſpring that takes beginning in ſome peece of ground, and ends in the ſame, but like the great Ocean that encompaſſeth the whole world. And as it is univerſall, ſo it is alterative too, it amends not the out-ſide only, but the inward man alſo. It gives a man a new temper, it makes him that was fearfull and timerous, become bold and couragious, him that was peeviſh and paſſionate, to be of a meeke and quiet ſpirit, him that was dull and cold, to be zealous and fervent; it makes him with *Oneſimus* profitable to himſelfe and others.

Mr. *Harris*, Treatiſe of the new Covenant.

XLVI.

Bees have a naturall and in-bred love to their Queene, which makes

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makes them in her absence long after her, nay unweariedly seeke for her without any other content or satisfaction, but her presence and company, and finding her they will not be severed nor sundered, pull them away as oft as you will from her, yet still they will draw neare and cling to her. Carry her whither you will, if they be sensible of it, you have their company also. How doth this condemne the want of love and affection of many subjects to their Governours, of many people to their God? whom a little pleasure or profit shall easily divide. But though it be thus with the most, yet there is a disposition in the Saints to long after the Lord, and it is not an emptie choice that consists only in affection, or in the naked resolution of the mind, but it is such a choice as hath strong affections running together with it, a strong inclination carrying the soule to him; so that though he be hindred many times, and often in his life unruly lusts come, and make a separation between the Lord and him, yet he cannot abide to be long from him. It is the Lord that he loves, he cannot for his heart choose another Master, but it is he with whom he will dwell, live, and die. And if some have quite lost their naturall affections to their God, no wonder then, if they are weake in their affections to their Governours, and bandy them as Tennis-balls of State, and smite them into every hazzard. I beleeve it not to be the practise of knowing people or Christian Nations, among whom we looke not to heare of a king-killing position, except from the upstart broode of perverted statising Loyalists. To passe therefore out of the old world, we will instance in the new, where among much affection and singular love and loyaltie to their Princes, it is yet strange to heare of one dissembling *Zimri* and politick *Jehu*, I meane *Atahuallpa*, who ambitiously opposed, and at last by his agents overthrew and slew his Soveraigne *Huascar*.

Dr. *Preston*, New Covenant.

Commentarios Reales por Garsilasso de la Vega lib. 1. de ca. 2. parte. c. 33.

XLVII.

No worldly pleasure hath any absolute delight in it, but as a Bee having honey in the mouth, hath a sting in the taile. Why am I so foolish to rest my heart upon any of them? and not rather labour to aspire to that absolute God, in whom is nothing savouring of griefe, nothing wanting to perfect happinesse.

Dr. *Hall*, Meditat. and Vowes. 2 cent.

XLVIII.

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XLVIII.

The godly man lives hardly, and like the Bee toiles here during the Summer of his yeare, holding himselfe short of his pleasures, as looking to provide for a hard winter, which when it comes he is able to weare out comfortably; whereas a wicked man doth prodigally lash out all his joyes in the time of his prosperitie, and (like the Grashopper) singing merrily all Summer is starved in winter. I will so enjoy the present that I will lay up more for hereafter.

XLIX.

Hugo Card. postil in Pro verb 25. 17. It is not good to eate much honey, because it is flatuous and windy, so he which is a searcher of Majestie shall be oppresst with glory; for as too much light dulls and dazels the sight, so too great enquirie into the Majestie and secrets of God

Rom. 12. 3. blinds the understanding; therefore saith *Paul*, *Let no man more highly thinke then he ought to thinke, but to thinke soberly, and seeke not out the things that are too hard for thee, neither*

Eccles. 3. 23. *search the things that are above thy strength.* And as honey is sweet while it is tasted, but if it be taken too much, it swelles and kills, so the inquisition of the divine Majestie, and of heavenly secrets is delightfull, but if it be too much it killes with er-

1 Cor 8. ror, or swells with pride. *Knowledge puffes up, but charitie edifies.*

L.

Bees are molested with many evills and enemies, some endanger them at or neare their hives, others assault and often surprize them in the fields, as the Hornet, Titmouse, Spider, but many more miscarry by frosts and snowes in winter, by cold stormes, chilling and tempestuous winds in the Spring, so that they are never secure (though they helpe themselves in their troubles, by the Lee-side of a hedge, encompassing a hill, and especially with the nimblenesse of their wings) but in their hive, nor alwayes there, except their keeper be more carefull.

How

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How many are the miseries of the sonnes of men, *Ben Adam, Ben Enosh*, if the sonne of *Adam*, presently the subject of sorrow. A wicked man sometimes in lesser distresses may finde shelter in earthly cómforts, but if the storme grow black and raging, these will prove an Egyptian reed, which not only deceives but wounds us with the splinters; a deceitfull brooke then failes the thirstie passenger, when there is most need of refreshing; *Jobs* miserable comforters And he will be beaten out of all helpe from them, and be as a naked man in a storme, as an unarmed man in the feild, or as a ship tossed on the Sea without an anchor, which presently dasheth upon rocks, or falle h upon quicksands. But a beleever when he is driven out of all comforts below, nay when God seemes to be angry with him, can appeale from God angry to God appeased, he can wrastle and strive with God by Gods owne strength, plead with God by his owne arguments. Finally, when he is beaten out of all comfort, he hath (a hive) a God to run to; and therefore can with *David* in his greatest exigencies comfort and encourage himselfe in the Lord his God. In this he takes Sanctuary, that he is is in covenant with him, who sits at the sterne and rules all, and hath committed the government of all things to his Sonne, our brother, our *Joseph*, the second person in heaven. We may be sure no hurt shall befall us, that he can hinder, and what cannot he hinder that hath the keyes of hell and of death? unto whom we are so neare, that he carries our names in his breast, and on his shoulder, as the high Priests did those of the twelve Tribes: though his Church seeme a widow neglected, yet he will make the world know that she hath a husband will right her in his good time, for when men know us least, God will know us most, he knowes our soules in adversitie, and knowes them so as to support and comfort them, and that from the Spring-head of comfort, whereby the sweetest comforts are fetcht.

Dr. *Sibbs*, The soules conflict.

LI.

There is nothing more dangerous then honey mixt with poison; and there is no man more perilous then a flattering faire tongued man, that speaketh out of a hollow heart.

T. Scot, Ser. on *Mat* 10. 17.

LII.

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LII.

Dr. *James*, on 1 Cor. 12. 25. As Bees of diverſe (ſuppoſed) noyſome flowers, make one ſweet honey; ſo nature the beſt Schoolmiſtres of many contraries hath made one the moſt ſweet and pleaſant mixture in the body, and that therefore leaſt there ſhould be any diviſion in the body.

LIII.

Mr. *Holbroke*, on Gen. 4. 22. We muſt be diligent in our calling, not like the ſluggard, or the Drone in the hive, but like the labouring Bee, taking the time while time is, whilſt the Sunne ſhineth making hay: which condemneth ſuch, that though they will not be altogether without a calling, nay more then that will ſanctifie it by the word and prayer evening and morning, yet will be negligent in it, either too late at it, lying in their beds, turning them with the ſluggard (like the doore on the hinges) folding their hands, and crying yet a little more ſleepe, or elſe tatlers in their buſineſſe (omitting many dayes) with a ſhew of walking in their calling, but in truth nothing leſſe.

LIV.

Mr. *Milles*, on Deut. 1. 16, 17. There is in the regiment of Bees an intruſive and troubleſome Drone, which eateth up the ſweet honey, for which the poore painfull creatures have laboured long before. And in the curious Bee-hive of this Common-wealth, there are foure ſorts of idle Drones, much like the foure ſects of Philoſophers which ſometimes flouriſhed in *Athens*; The Academick, Epicure, Peripatetick, and the Stoick. The firſt, were greatly given to ſtudie and contemplation, and theſe are the idle gamſters who are all night in ſpeculation, deviſing new tricks, and inventing ſtrange conveyances by Cards and Dice, which next day they put in practice; God ſaith, *in the ſweate of thy face, thou ſhalt eate thy bread*, and theſe idle Drones live by the ſweat of other mens browes, only by playing. *David* with one ſmooth ſtone out of his bag diſcomfited the whole hoſt of the *Philiſtines*; and

Gen. 3. 19.

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and this idle Gamster with a blind bone out of his jugling box, with the activity of a polypragmaticall finger, can in one houre undoe many an hopefull heire. The second Philosopher is an Epicure, who daily gluts himselfe till the surfetting reversions of fat trenchers are cast under the table to dogs. This was *Baltazars* sin, who at his riotous banquet in excesse of wine among his Princes, wives and Concubines, forgat the Lord so farre, as Gods anger chalked his folly on the walls. In this fullnesse sinned churlish *Nabal*, in forgetfulnesse of poore *David*, and his tried followers. And in this fulnesse perished the gluttonous belly-god in the Gospel, who would rather choake with the crust, then hunger-bitten *Lazarus* should have the crummes. These were those beasts with whom the Apostle encountered at *Ephesus* after the manner of men. Their chiefe School-point was this; *Let us eate and drinke, for to morrow we shall die.* Against these gourmandizeing Epicures God grieveth and denounceth a woe; *Woe to them that eate the lambs of the flock, and calves out of the stall, drinke wine in bowles, and anoynt themselves very costly, but no man saith he is sorry for the affliction of Joseph.*

The third is the Peripatetick, who used to dispute walking, and in this order are Cunnycatchers, who like the Devill are alwayes compassing the earth, and still goeing up and downe seeking whom they may devoure. These cunning Philosophers walke from Inne to Inne, from East to West, and with Satan can turne themselves into an Angel of light, full of good words, and with *Judas* embrace a man with a courtly boone-congee, and at parting cut a mans throat, and empoverish many a plaine dealing Countrey ghest, with cosenage in copartnership.

The fourth idle Drone or sect of Philosophers, is the Stoick, who used to keepe their acts and disputations standing, and these I call your Minicall Comedians and Apish Actors, who with *Thraso* thunder out *sesquipedalia verba*, a heape of inkehorne termes, to the terror of a poore Collier, and with a ridiculous *tu quoque*, move many a foole to laugh at their owne follies.

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LV.

Drones have larger bodies then Bees, ſeeme fairer creatures, fly oft in and out of the hives, with a great noiſe and humming ſound, but yet *nil dignum tanto ſonitu*, they labour not, gather nothing, are all in appearance, nothing in worke or worth. And many hypocrites by common gifts planted in their wills and affections, by excellent morall vertues of juſtice, temperance and patience, may many times exceed the godly in outward appearance; as dead bodies are greater and longer then living bodies, then the ſame bodies living, but yet want a ſoule to actuate and quicken them.

LVI.

Bees when they are new driven, or goe forth in a ſwarme, if they be not deſperately few, or the ſeaſon quite gone, labour more diligently and improve their time more carefully then other hives that are well provided for, and therefore will be more early and late at their worke then others; ſo by diligence redeeming the time. Thus doe theſe unreaſonable creatures teach reaſonable men, by their continued care and providence, and laborious paines-taking to encreaſe their little; for if the iron be blunt then he muſt put to the more ſtrength, ſaith the Preacher, and *Maximum mediocris ingenij ſubſidium diligentia*; It is moſt incredible what induſtry and diligence and exerciſe, and holy emulation are able to effect for the bettering and increaſing of our ſpirituall gifts. There is no uſury ſo lawfull as of ſpirituall talents, nor doe I know any ſo profitable uſury, or that multiplyeth ſo faſt as this doth, your uſe upon uſe that doubleth the principall (almoſt) in ſeaven yeares is nothing to it. Oh then caſt in thy talents into the banke, make thy returnes as ſpeedy, and as many as thou canſt, loſe not a Market or a Tyde if it be poſſible, be inſtant in ſeaſon and out of ſeaſon, omit no opportunitie to take in and put off all thou canſt, ſo though thy beginnings be but ſmall, thy latter end ſhall wonderfully increaſe, by this meanes thou ſhalt not only profit thy ſelfe in the increaſe of thy gifts unto thy ſelfe, but (which no other

Eccleſ. 10 10 *Sen. in contr.*

Mr. *Sanderſon*, on 1 Cor. 12. 19.

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ther usury doth beside) thou shalt also profit others, by communicating of thy gifts unto them, which is the proper end for which they were bestowed.

LVII.

If the Pismire must be praised and imitated for her industry and diligence, in that she carefully provides her food in Summer, and her meate in harvest, when as yet neither man nor beast (as farre as I know) is any whit the better, the fuller, the richer for all her labours: How much more worthy of praise and imitation is the industrious Bee, which in diligence is more abundant, in paines-taking more earnest, in profit above measure? Let as many then as desire true praise and imitation, cast gifts into the common treasury of the Church, employ their good parts and spirituall graces, so as they be some way or other profitable and serviceable to their brethren, and fellow-servants in Church and Common-wealth.

LVIII.

Delayes in any thing that is good are ill, and in the best things worst. Waxe when it is chafed will take an impression, but if the seale be not speedily put to it, it returnes to it's former hardnesse; and the best affections of the best men, if they be not taken in the heate, abate and lessen and die.

LIX.

The Waspes after their aged mother is unable to flie abroad (having her wings worne with former labours) provide for her, and bring her food as long as they themselves subsist, really performing what is reported of the Storke: But how many worse then brutes are to be found in this last age without naturall affection? if at all relieving their parents, yet after such a niggardly and sparing manner, that a man shall never come where their parents are, but heare them cry out like *Rebecca*, that they are weary of their lives, or like *Jonah*, it is better for them to die then to live. Nay the world swarmes with some

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Ezek. 22. 7. men (or Monsters rather) such as *Ezekiel* speakes of and reproves, as set light by father and mother, such as, as soone condescend to relieve a vagrant by the high way side, as their owne father or mother.

LX.

Dr. *Hall*, Contempl. *lib* 10. *Sampson* had not found his honey, if he had not turned aside to see his Lion. And we shall lose the comforts of Gods benefits, if we doe not renue our perills by meditation. The mercies of God are ill bestowed upon us, if we cannot step aside to view the monuments of his deliverance; dangers may be at once past and forgotten.

LXI.

As the Bee-Master on occasion of want will feed his Bees, but never the Drones; so true charitie relieves those poore men that will labour, but not at all, or rarely those lasie beggars that will take no paines.

LXII.

As *Sampson* eat the honey-comb out of a dead beast; and disdained not those sweets because he finds them uncleanly laid; so good may not be refused because the meanes are accidentally evill; honey is honey still though in a dead Lion. Those are lesse wise and more scrupulous then *Sampson* which abhorre the graces of God, because they find them in ill vessels. One cares not for the Preachers true doctrine, because his life is evill. Another will not take a good receit from the hand of a Physitian, because he is given to unlawfull studies. A third will not receive deserved contribution from the hands of an Usurer. It is a weake neglect, not to take the honey because we hate the Lion; Gods children have right to their fathers blessings where-soever they find them.

LXIII.

Jonathan out of the honey drew the danger of death, and we

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we draw evill out of good, and turne the grace of God into wantonneſſe; our wealth and honours make us proud; our favours with great men to diſdaine our betters; and our powers to oppreſſe the innocent; from the length of dayes we draw forth a multitude of ſinnes; from beautie luſt, and from the abundance of Gods mercie, preſumptuous perſeverance in ſinne; but as the Bee ſuckes honey out of the Henbane, and *Sampſon* out of the eater drew meate, and out of the ſtrong drew ſweetneſſe; ſo God which commanded the light to ſhine out of darkneſſe, did from the death of Chriſt bring eternall life, to as many as beleeve in him, for he gave his Sonne that whoſoever beleeveth in him ſhould not periſh but have everlaſting life.

Dr. *Williams*, The beſt religion, *Pſ.* 2.

LXIV.

Bees are the moſt harmleſſe and laborious, the moſt orderly and profitable creatures that the world affords; and yet have more adverſaries and enemies then (almoſt) any other creature, as in the enumeration of them in the former booke hath been diſcovered: and herein are they Emblemes of beleevers, who though they hurt none, profit all; yet are oppoſed and perſecuted by many. Satan (firſt) like a roaring Lion ſeeking whom he may devoure, and his Emiſſaries are ſtill compaſſing ſea and land, endeavouring their deſtruction. If *Iſrael* will needs goe out of *Egypt* to ſerve his God; *Pharaoh* will be preſently up in armes and purſue after him. This Serpent hath a brood of his owne bowells, that like the Mole can creepe under the earth, and tranſforme themſelves into Angels of light, to performe deeds of darkneſſe; which made *Eſaiah* cry out *he was undone*; *David*, *woe is me*; and why? for they dwelt among a people of polluted lives, and that abhorred peace, their throates were an open ſepulcher, their tongues like razors hot as the coales of Juniper, the poyſon of aſpes under their lippes, and their mouth full of curſing and bitterneſſe. And beſide theſe forraigne foes that ſeeme the further from us, there be home-bred and domeſticall, and therefore more dangerous adverſaries: Firſt, corruption the old man, that daily ſends forth whole ſwarmes of luſts to deſtroy the new. And ſecondly, death the laſt enemie that is to be deſtroyed.

LXV.

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LXV.

It is a common but fabulous conceit, that Bees once losing their stings, lose their naturall diligence and industrie and become idle and lasie Drones. But it is really true of too many men, who sometimes with their faces to *Sion*-ward make profession of holinesse and religion, but feare of the losse of fame, estate, honour, or life, makes them with *Demas* and *Hymeneus* embrace the world, and make shipwracke of faith and a good conscience.

LXVI.

Bees are acknowledged to be a Common-wealth, and manifest it, as in many particulars, so in these that they watch and worke, provide and labour, procreate and educate one for another; once, doe all for the benefit and advantage of the whole body. I would our Common-wealth were comparable to a hive of Bees even in these things, then we would be content to watch and labour one for another; all, for the safety of the whole body. In a Ship no mans safety is in single care for himselfe, but in the common good of the company, so ought it to be in the Common-wealth also. Therefore no politick body can prosper or make a good Voyage where private respects make prize and Monopolies of publique projects, where the little finger will weare a Diamond, though the stomack which feedeth all, wanteth meate to sustaine the whole body. This St. *Paul* so earnestly disswadeth, that he calleth the mutuall love of Christians, *the band of love*, tying us together.

Dr. *Page*, *Zebulons* blessing.

LXVII.

The robbing Bee and the Waspe, (though there be between them, if not an antipathie, yet certainly a desperate hatred and enmitie) will without strife or difference concurre together together to rob a hive of Bees, deserving ill of neither, but only through paucitie and weakenesse obnoxious to their insolence and rapine. Doe you wonder then if men wickedly disposed (though

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(though ill affected each to other) to compasse their particular designes, with formalities of concord, comply and agree together, as *Herod* and *Pilate* were made friends to crucifie Christ, to compasse the destruction of another, by whose ruine they may greaten and enrich themselves.

LXVIII.

Bees in extremitie of winter lie still in a deepe (but not dead) sleepe, stirre not from their places, eate not, make no noise, but on the alteration of the weather, when the Sunne shineth chearely on them, then these sleepers awake and revive. Many men finding some change in themselves, because such lusts as have been formerly vigorous and lively are now dull and torpid, they thereupon comfort themselves, as if they were dead, whereas they are but covered and laid asleepe for a time, and will awake and rise againe. As *Sampson* when he was tyed with cords rose againe, and was as strong as ever he was when the opportunitie came, and it was told him *the Philistines are upon thee Sampson.* So lusts are oft laid asleepe till the opportunitie comes, when all the threds of good purposes breake, and they rise againe in their strength, therefore if there be not a new creature brought within thy soule, thy lusts are but asleepe, they will rise againe. Dr. *Preston*, The New Creature.

LXIX.

'Tis not the waxe but the impression of the seale that fortifies a Conveyance, and makes the Deed. And temptation however in it selfe, it be lesse then the fact, yet considered in the Author that invites sin by these opportunities doth farre outgoe it. The infirmitie of a sinner may sometimes find excuse or pitie, but what shadow of excuse can shelter his malice, that drew him to the act? Man is a thing easily perswaded to error, *Cereus in vitium flecti*, like waxe wrought to a softnesse that will receive the figure of any vice. And yet we blame not his softnesse, but lament him whose credulity and easie temper betrayes him to every temptation. If we lay the occasion of mans fault aright, we must lay it on the tempter. At his allurements did *Adams* obedience relent, his perswasions heated him with Dr. *H. King*, Exp. of the L. Prayer. *Juvenal*

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with the inordinate desire of knowledge; he chaft this waxe, mollifying it with such art that it received his authenticall seale of damnation, by which sinne was made currant in the world.

LXX.

A man findes God in his word as he seekes him by prayer, and no otherwise; wax receives impression as it is prepared.

LXXI.

If Bees be once provoked they are fiery and furious, violent and virulent, though to their owne ruine and destruction, implacable and unappeasable with opposition and resistance. And such is the impatient man, he hath his spirit set on fire of hell, he hath a short possession, he is a mad man for so many yeares, that will not stick at any thing that the Devill and depraved nature bids him doe; he will flie in the face of servants, children, wife, Magistrate, God, any one; his heart brings forth sin by troopes.

Mr. *Lockier*, Usefull instruct.

LXXII.

Bees will not admit of strangers into their society, except they come with submission and resolution to live under their Leader, and assimilate themselves to their manners, without any after-commerce or fellowship with the hives from whence they departed. And God receives none under the tuition of his love and favour, but such as are wholly emancipated from the world, and with full purpose of heart give up themselves to be guided by him, without having any further fellowship with their former workes and companions of darknesse: heaven is bestowed upon none but upon such who are thus both willing and capable; holinesse makes capacitie of happinesse.

LXXIII.

Bees are contented with a simple food procured by their owne industrie, of which they feed sparingly, but worke labori-

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riously and diligently: Whereas the Drones work not at all, but liberally fill themselves, and that daily with the pureſt honey, and to ſharpen their ſtomacks take many a vagary in the heate of the day, with a loude buzzing, as if they were acting ſomewhat to purpoſe, but it is only to emptie their bodies, and quicken their appetite, whereby they often grow unweildy, and after a while (though the Bees let them alone) cannot returne back againe into the hive. And are not many reaſonable men defective in their imitation of the unreaſonable Bees? who frequently eate to ſurfeting and drink to drunkenneſſe, and exceede the limits of temperance in the uſe of the creatures, denying themſelves no pleaſing nor deſireable thing, that ſo they might prevent ſuch evills, as admitting theſe exorbitancies will bring inevitable miſchiefe upon them: But Drone-like live idly and intemperately, not conſidering the Apoſtles exhortation; *Be ſober, be vigilant*, ſaith he, *for your adverſary the Devill, as a roaring Lion, goeth about ſeeking whom he may devoure.* As if he ſhould have ſaid, you are all in a warfaring condition in the field with an adverſary, and he no ſimple one, but a Lion, a roaring Lion, a diligent adverſary, who is alwayes going about ſeeking whom he may devoure, drawing into ſin, for he hath no way to devoure men by, but that: therefore doe you as Souldiers in the field with an enemie would doe, they plie not their bellies, but uſe their meate and drinke and ſleepe very ſparingly, becauſe though this be not enough to prevent the miſchiefe that is intended them by their enemies, yet it is one very good meanes of their ſafety, for it preventeth a ſudden ſurprizal, and enableth them to make reſiſtance, and, ſo would a moderate uſe of meate, drinke, pleaſure, &c. keepe you waking and give you libertie to prepare for all encounters with the Devill.

Ephes. 5. 5.

Mr. *Hoard*, Soules miſery.

LXXIV.

As the humming Bee having loſt her ſting in another, doth ſtill notwithſtanding make a fearfull and grievous noiſe by her often buzzing about us, but is nothing able to hurt us: ſo ſin and death having loſt their ſting in Chriſt Jeſus, doe not ceaſe at all, even in the height of the parching heate of our conſci-

Mr. *R. Greenham*, Comfort for afflict. conſci.

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ences to make a murmuring and with furious ſtormes of temptations to terrifie us and our conſciences, albeit they can never ſting us.

LXXV.

A man by diſcourſe can never poſſibly perſwade another of the ſweetneſſe of honey ſo fully as if himſelfe did taſt it. And it cannot be told how ſweet a thing grace is, doe but trie, and you ſhall ſoone perceive a difference between it and all outward comforts, therefore *come and taſt*, ſaith the Prophet, *how good the Lord is*.

Mr. *Harris*, Way to true happineſſe.

LXXVI.

Bees though (many times) they have ſufficiently ſtored and repleniſhed their hives, yea ſometimes to a ſuperabundant redundancy; hindering for want of emptie cels the future generation, and ſo ſuffer becauſe of their plenty; yet will they not give over working; nay ſome, not leave robbing and that from the weaker and wanting hives. Have we not here a faire picture of a covetous man, who is never at reſt, never ſatisfied and contented.

LXXVII.

The Bee a nice and dainty creature, builds her cells ſometimes in an unſavoury carkaſſe, and the carkaſſe that promiſeth nothing but ſtench and annoyance, now offers comfort and refreſhing, and in a ſort payes *Sampſon* for the wrong offered. Oh the wonderfull goodneſſe of our God, that can change terrors into pleaſures, and can make the greateſt evills beneficiall. Is any man under his humiliation, under the hand of God growne more faithfull and conſcionable? there is honey out of the Lion. Any man by his temptation or fall become more circumſpect? there is honey alſo out of the Lion: There is no *Sampſon* to whom every Lion doth not yeeld honey: Every Chriſtian is the better for his evills, yea Satan himſelfe in his exciting of Gods children advantageth them.

Dr. *Hall*, Contemplat. *lib.* 10.

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LXXVIII.

If robbing Bees charge a neighbour-hive, and finde a resolute opposition, with the slaughter and destruction of the prime Leaders and forward invaders, the scattered residue and broken triarij will be timerous and fearefull to reattempt, or if at all but faintly, and quickly sound a finall retreate. And he that hath felt the sting of sin in his conscience, and been formerly confounded with the shame thereof, dreadeth and fleeth and seeketh by all meanes to shunne those sinnes which have left so sad a remembrance behind them, for the smart of the wound of conscience for sinne past, is a speciall meanes, through grace, to keepe us from sinne to come; for (as *Lactantius* writeth) the ashes of a burnt Viper are a present remedy against the sting of the Viper, so the remaines of sinne in the conscience, *viz.* remorse and shame are a present remedy against sinne, as we may see in *David*, *I know mine owne iniquitie, and my sinne is ever before me.*

Dr. *Featly*, The Check o Conscience.

Lactan.

Psal. 51. 3.

LXXIX.

Bees are very little creatures, and their sting is very small, not visible except it be very neare, and yet this sting affects with grievous smarting paine. And if the sting of a Bee swell and rankle, and smart so much, what will the teeth of the Adder, or the taile of the Scorpion? if those little sinnes that are so small that we can scarce discerne them to be sinnes, put the conscience to so much paine and anguish, what will great sinnes doe? *If whosoever is angry with his brother without a cause, shall be in danger of the Judgement; and whosoever shall say unto his brother, Racha, shall be in danger of the Counsel; And whosoever shall say, thou foole, shall be in danger of hell-fire:* What punishment is he like to endure, who beareth malice in his heart against his brother, envieth his prosperitie, undermineth his estate, woundeth his good name, nay spilleth his blood, this is a crimson sinne, and mortall in a double sense; not only because it slayeth the soule, but also because it killeth the body.

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LXXX.

Plutarch de animæ tranquil. *Plutarch* writeth that though Time be a most drie and bitter herbe, yet that not only the Apothecaries draw an wholsome oyle out of it, but also that the Bees extract from thence sweet honey. This drie and bitter herbe is affliction to the tast of most men: yet out of it men may draw both a wholesome oyle to cure a wounded conscience, and honey also to delight the spirituall tast. Oyle out of the nature of afflictions which are chastenings; and honey out of the cause Gods love: *As many as I love I rebuke and chasten.*

Revel. 3. 19.

LXXXI.

Dr. Preston, New Covenant. If you doe but take any peice of Gods word, and doe but stay upon it, as the Bee doth on the flower, and will not off till you have got somewhat out of it; if you be still digging in this mine, this will make you rich in knowledge, and if you be rich in knowledge, it will make you rich in grace.

LXXXII.

The word of God, saith the Prophet, *is good*, yea and pleasant too, to every one that walketh uprightly, as sweet as honey, yea sweeter then the purest honey to such; as *David* professeth of himselfe But even honey it selfe, though of it selfe good and pleasant, and wholsome and medicinall, yet causeth paine and smart to an exulcerate part. And children therefore that at other times much desire and cry for it, yet will not endure to have it come neare their lippes, when they have sore mouths. It is mans love of his owne corruption and impatience of cure, that maketh the word of God harsh and unpleasant unto any.

Mr. Gataker, on Psal 82. 6.

LXXXIII.

Looke upon the silly Bees the best Emblemes of obedient creatures, painfull in their labour, dutifull in their life, their king being safe, they are at unity: So long as their king is well, they

R. Garey, on Hos. 7. 4.

they follow their worke, but being dead, they leave and loath their honey-combes. Behold how nature hath ſtamped obedience by inſtinct to Bees to be ſubject to a ſuperior in their kind; how much more ſhould nature, reaſon, and grace, ſtamp obedience in the hearts of Chriſtians, knowing that without a government, Kingdomes and States are thraldomes, *Remota juſtitia quid ſunt regna niſi magna latrocinia*, take away juſtice, and what are kingdomes but dens of theeves, take away obedience to government, and that were *miſcere terris tartara*, make earth and hell all one, but only in name. *Auguſt. de civitat. dei. lib 4. c. 6.*

LXXXIV.

Bees will not be forced to communion with others, except they voluntarily forſake their owne hives in a ſwarme; for take them at other times, as when they lie out and ſweepe them into another hive, yet they will (at furtheſt) the day following all returne back to their owne and proper hive: it is with them as with a ſtreame that hath made it ſelfe a channell wherein to run, it may indeed by a ſtrong hand be turned out of it's courſe, but yet it will be ſtill bending towards it's owne way, and never leave working and winding till it be where it was before: ſo howſoever the upright perſon may be unſetled for a time and put beſides his courſe, yet he ſtrives and labours to be where he ſhould be, and never finds himſelfe well, till he be in his firſt path: like the Needle in the Compaſſe, though it be jog'd aſide for a ſeaſon, yet it makes toward the North againe, and is in a perpetuall trepidation, till it be where it ſhould: So the children of God, though they be ſubject to manifold declenſions, manifold deſertions, manifold ſtops and ſtayes in their courſe to heaven, yet ſtill ſet their faces thitherward, though the wind may ſometimes violently carry them beſides the way, yet it doth not diſmay them, nor doe they find any reſt or content in their ſoules, till they be in their right courſe againe. Mr. *Harris.*

LXXXV.

Bees of all politick creatures moſt unanimouſly comply and combine together, live and love together, mutually protect and

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and provide for one another, alwayes agree among themselves, and act and worke all for the publique good and wellfare of the whole body: they (as it were) throw downe all enclosures, lay all in common, not selfish, looke not on their owne things, but on the things of others, tendering their well-doing as their owne; neither are they apt to give offence carelessely, nor to take it causelesly. And shall men, shall Christians be so unnaturall as to enveigh one against another, to entrap one another, to defame, disgrace, and devoure one another, *tantæne animis cœlestibus iræ?* as he said in another cause, this is all one as for one eye to pull out another, one hand to cut off another; know we not that perfection and safety depends in union? as on the other side, danger and destruction inevitably followes on distraction. Union like the wise woman *Solomon* speakes, buildeth up the house, but division as the foolish woman pulleth it downe with her hands.

LXXXVI.

The Waspe loveth not the Apothecaries Gally-pot, but the sweets contained therein: If we love any for our pleasure, we love indeed our pleasure and not him, if we love him for our profit, we love our profit and not him, if we love him for any end of our owne, we love our selves not him: Thus the *Jewes* loved not Christ, but the loaves which he multiplyed by miracle.

LXXXVII.

Some Naturalists observe, that the thickest and best honey is that which is squeezed last out of the combe, so usually the daintiest dish is served in at the last course; and Musitians reserve the sweetest straine for their close, the last speech of a dying friend leaves a deepe impression in our hearts; and art imitating nature holds out the last note of the dying sound in the Organ or voice.

LXXXVIII.

The *Israelites* comming into a wood, where they saw the honey

ney dropping, and found the meate as ready as their appetite, yet dare not touch the sustenance, and will rather endure famine and fainting, then an indiscreet curse: So the truly righteous, though great temporall advantages present themselves with the breach of Gods Law, yet rather choose a contented poverty then riches with the appurtenances of everlasting sorrow. Dr. *Hall*, Contemplat. *lib.* 11.

LXXXIX.

As *Sampson* tooke honey out of the carkasse of the Lion; so it becomes the Magistrates to pull the honey of the Church out of the jawes of all sacrilegious Lions. But if the cunning conveyances of sacriledge have made that impossible, since it lies not now intire in the combes, but is let downe and digested by these ravenours. Let him whose glory it is not to be *pater patriæ*, but *pater ecclesiæ*, provide that those few pots we have may still seeth, and that if nothing will be added, nothing can be recovered, yet that nothing may be purloyned from the Altars of God. *Idem.* The Impresse of God.

XC.

Thy lippes, my Spouse, drop as the honey-combe; honey and milke are under thy tongue. He commends the Spouse for her lippes and her tongue: Now her lippes are the Preachers and Doctors, and other Teachers of the Church, who ought to be a honey-combe to their people with the sweetnesse of love, and distilling with gentlenesse and affability. The lippes of *Moses* were not an honey-combe, because they had more bitternesse then sweetnesse, *I am not eloquent*. Also the Law of *Moses* had bitternesse, for it required *eye for eye, tooth for tooth*. Againe, though the lippes of *Moses* were a honey-combe, yet not dropping, but dry and stony and mysterious, that is, in stony Tables, where in truth the secret of the divine Law was hidden, so that he made him to suck honey out of the Rock. But now the lippes of the Church drop as a honey-combe: A honey-combe is honey in the waxe, that is, the divinitie in the humanitie. Or by honey-combe is understood the secret of divine wisdome, which *Hugo Card. Postil. in Cant. c.* 4. 11. Exod. 4. 10. Exod. 21. 24. Deut 32. 13.

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which is melted from the lippes of the Church, whence it followes, *Honey and milke are under thy tongue*; by tongue is to be understood the same with the lippes; by honey is signified the instruction of the perfect, but by milke the teaching of the simple. The Apostle had honey under his tongue when he said, *As unto Babes in Christ I have fed you with milke*. A honeycombe dropping, not dilated and spread abroad: For the words of Doctors or Preachers ought to drop according to the capacitie of the hearer, not to be powred out all at once.

1 Cor. 3.2,3.

XCI.

Bees are not only profitable for our bodies, but morall uses are by Divines made of them. The Queene-Bee only useth not her sting, hath a body greater then the rest, wings not answerable to her body, workes not, yet though throned in the top of the hive, makes a continued progresse or walke over it, after a sort over-seeing, directing, exhorting others in their severall stations and employments. So kings and great men ought to have innocent hands readily extended for the good of all, valiantly defending, willfully hurting none, with counsell and authoritie presiding and profiting, whensoever there is need and occasion.

Polani Syntag. lib. 5. c. 25.

J. Ja. Gryn parte. 1a. Theoremat. et problemat. theolog.

XCII.

The Bee, saith the sonne of *Syrach*, is little among winged creatures, she composeth her workes admirably, and observes a wonderfull politie and order in government: So some men that have little bodies, and lesse strength, yet have acute wittes and working braines.

XCIII.

Bees gather of many flowers, but hurt none: so ought the Governours among Gods people, have a care of all their subjects, but wrong and prejudice none.

XCIV.

Bees ordinarily delight not in dead carkasses, nor gather of dead

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dead flowers: so ought heroicall natures to abominate vices and vicious persons.

XCV.

Bees gather not all things of every thing; but Bee-bread of some flowers, honey of others, water else-where: so ought the Governours of kingdomes to exact and expect some services from Divines, others from Lawyers, others from the Nobilitie, others from Citizens, and others from men of inferiour ranke and qualitie. Now it is a singular part of judgement and prudence to observe what beseemes each order, what every man can performe, and to draw all orders to a pleasing harmonie.

XCVI.

Bees are diligent in their labours whensoever faire weather invites them, and not only on some set times or dayes, taking libertie to be idle on others. So ought the Governours of kingdomes alwayes attend and procure the good of the Common-wealth, and of each particular person in the same, but without hypocrisie and dissimulation. *Friderick* the third Emperour of *Germanie* not without cause when he saw his Counsellers enter into the Court at *Vienna*, was wont to wish, that every man of them before they entered in, would put off two plagues of the Common-wealth, *simulation* and *dissimulation*.

XCVII.

Bees as some other Insects will flie so long about a Candle till they burne their wings, and lose their lives. And a wandring mind growing wanton with curious care about the flame of hidden secrets, oft befooles, nay destroyes it selfe.

XCVIII.

A wise soule in his thought-worke is as a Bee-hive, all the powers are in labour, and continually going out and returning, no power idle, and none returne emptie, and all their obser-

Mr. *Struther*, Christian Observations.

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tions as honey laid up for use: it gathereth and digesteth in it selfe a substance and masse of purified knowledge, and that for affection and action, and all of them for the obedience of God and union with him.

XCIX.

Bees are not only laborious when they are in want, and their provision small, but when they are largely supplyed, they are as earnestly bent on their gathering as if they had nothing. Beleevers are not to stint their endeavours, when they have attained to a competency of knowledge, but to goe on still forward and grow, for though they have enough to make them thankfull, yet never enough to make them remisse and negligent, they must still presse forwards, like runners in a race, and look not how much they have runne, but how much remaines: let it alwayes displease thee to continue as thou art, if thou meanest to arrive where thou art not.

C.

Bees have a common house, a common care of posteritie, common labour, common food, common generation, a common use and fruition of all things, and therefore intirely and cordially love one another, if one be wronged they will all, though with the losse of their owne lives, vindicate the injury and vanquish the adversary. And shall not professors of the same religion who are in so neare a relation one to another, be tenderly affected one to another, and love one another? They have the same God for their father, the same Church for their mother, Christ their elder brother, are begotten of the same immortall seed, nourished with the same milke of the word, eate the same bread of the Sacraments, and looke for the same blessed inheritance, and therefore must needs, by the teaching and worke of the Spirit, love one another heartily and mutually.

Mr. *Elton*, Expos. on *Coloss.* c. 4. v. 15.

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THE THIRD CENTURIE.

I.

THere is something of God in every creature, this makes the meditation of the creature to be usefull There is none, even the meaneſt (much more the Bee) but it hath a being, and thereby in a ſort ſets out the goodneſſe of God: God likens himſelfe to many, to ſhew that there is ſomething of him in theſe, and therefore to teach us to riſe from them to him in whom all the excellencies that are ſcattered in them are united. In innocency we knew God, and in him we had knowledge of the creature, but now we are fayne to helpe our ſelves from the knowledge of the creature, to riſe to the knowledge of God. Dr. *Sibbs*, Bowells opened. *Ser.* 16.

II.

Our eyes ſhould like a Bee upon infinite variety of flowers, from every creature it lookes upon collect much ſweet matter of heavenly meditation, for the magnifying of the Creator, his wiſdome, power, *&c.* Mr. *Bolton*, Saints ſoule exalt. humila.

III.

Bees provoked neare the hive, will be very troubleſome, and according to their power dangerous; ſtriveing, ſtriking, or contending further exaſperates, but yeilding or giving place pacifies them. And if we aime at peace with men in caſe of controverſie with another, let us apply our ſelves to a coole language, ſpeake ſoftly, ſpeake wiſely, ſpeake ſilently and in ſecret: this will coole the great heate of another, and diſarme him of his

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exceſſive indignation; hard to hard will never yeild, but lay hard to ſoft, and you may breake even a flint upon a bed or cuſhion which cannot be done by laying one flint upon another: So let a mans heart be never ſo hard and obdurate if we uſe ſoft words to him, give him mild ſpeeches, he cannot but be mollified and melted towards us; In ſo doing you ſhall heape coales of fire on his head, which ſhall melt and ſoften him.

IV.

Bees though they be ingaged in a hot and mortall skirmiſh with other Inſects, yet ordinarily uſe not their ſtings, but wreck their ſpight with biting and breaking of their enemies legges, but when they are tranſported with rage, and blinded with paſſion, then they ſting, but alwayes with their owne certaine ruine and deſtruction: And not leſſe prejudiciall is the fire or paſſion of zeale to profeſſours and the Church of God, where it wants knowledge to direct it. What *Iſocrates* ſpake ſometimes of valour or ſtrength, is as true of zeale, *viz.* that zeale and reſolution with wiſdome doth much good, but without it, it doth much miſchiefe to our ſelves and others, like Granadoes and other fire-workes, which if they be not well looked to and ordered, they break and doe more hurt to them that caſt them, then to the enemie. No man can be ignorant of the direfull effects of blind zeale, when an unskilfull Phaeton takes upon him to drive the chariot of the Sunne, he ſets the whole world in a combuſtion. What a metled horſe is without a bridle, or a hot ſpurred rider without an eye, or a ſhippe in a high wind and ſwelling ſaile without a rudder, that is zeale without knowledge, which is like the eye in the Rider to chooſe the way, or like the bridle in the hand to moderate the pace, or like the Rudder in the ſhippe to ſteere ſafely the courſe thereof. St *Bernard* hits full on this poynt, Diſcretion without zeale is ſlow-paced, and zeale without diſcretion is heady, let therefore zeale ſpurre on diſcretion, and diſcretion reigne in zeale.

Iſocrat. ad Dem.

Dr. Featly, The true Zealot.

Bernard in Cant. Ser. 22.

V.

Bee of the ſame hive live together with the greateſt love and agree-

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agreement that can be conceived, never contending, never quarrelling: whereas sheepe of the same fold when they are wanton will dash one against another, and almost breake one anothers heads; yea men that live in the same house, of the same familie, will jarre and jangle; yea children that tumbled in the same bellie, for very trifles sometimes will fall out and fight one with another: Nay true Christians (with shame and griefe be it published) though they will not persecute the cause of religion, yet will molest and disquiet their fellowes, through passion, pride, selfe-love, and other corruptions drawing them thereunto.

VI.

Waxe must be chafed and tempered between your fingers if you meane to set an impression upon it, and if you continue not to temper it, it will be hard againe nevertheless. And so it is with our hearts, therefore use the meanes of grace constantly, doe it day by day, estrange not your selves from God by intermission of holy duties. Mr. *Harris*, Treatise of the new Covenant.

VII.

Hardnesse is not intrinsecall to wax, but there is a naturall tendency to softnesse: Let it be hardened through cold, yet bring it to the fire, or let the Sunne smile a while upon it, with it's beames and warmth, and it will relent, and if the heate be strong returne to it's liquid nature. But now it is farre otherwise with a stone, for let the Sunne shine never so hot upon it, lay it by the fire it melts not, it yeilds not, nay it is rather made the harder. The wicked man hath the hardnesse of a stone, let him enjoy never so many mercies, he is not a whit moved the more to amend his life, let God speake to him, let him smile upon him, all's one to him; nay he growes every day under the best meanes more hard and impenitent. Contrarily, the faithfull Christian, how ever by sinne he may for a time contract hardnesse, yet bring him to the Word and Ordinances a while, let God shine upon him with the light of his countenance, and he will resolve presently and recover his former tendernesse.

VIII.

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VIII.

Bees are frequently endangered by Spiders who weave their cobwebbs neare the flowers where they uſe to gather, and alſo juſt over their paſſage out of their hives, and ſo at their going forth, but eſpecially at their returne home laden and weary, make a prey of them. And earthly things prove ſnares to many, becauſe of their dayly preſence. *In the way wherein I walked, have they privily laid a ſnare for me*, ſaith the Pſalmiſt, and in the way and places wherein we are dayly walking and travelling doe theſe baites lie, they are the things which we continually look upon, heare of, handle, taſt, feele, and therefore as thoſe ſnares which are laid for a bird in the place where it is frequently hopping up and downe, doe much endanger it, ſo thoſe neceſſary evills which therefore we live among and make continuall uſe of, becauſe they are neceſſary, doe the more ſtrongly allure us unto danger, becauſe they are alwayes before us.

Pſal. 141. Mr. *Heard*, Soules miſery.

IX.

Whenſoever any people did forget to leane upon Gods Word, and betooke themſelves to humane confederacies, to correſpondence with idolatrous people, to facilitie in ſuperſtitious compliances, and the like fleſhly counſells, they find them alwayes to be but very lies, like Waxen feaſts made ſpecious of purpoſe to delude ignorant commers, things of ſo thinne and unſolide a conſiſtence, as ever were broken with the waight of thoſe that did leane upon them.

Mr. *E. Reynolds* explicat. of the 110 *Pſalm*.

X.

Luſts ever bring inconſtancy with them, and make the ſoule like weary and diſtempered bodies, never well in any poſture or condition; wicked men flie like Bees from one flower to another, from one vanitie to another, and can never find enough to ſatiate the endleſſe intemperancy of unnaturall deſires, only the Goſpel being ſpiritually apprehended, hath treaſures enough for the ſoule to reſt on, and to ſeeke no further.

Idem.

XI.

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XI.

A Bee when ſhe hath once ſtung can ſting no more, yet will teſtifie an angry diſpoſition by loude buzzings and frequent ſtrikings at the face of the partie (ſtung before) ſometimes to his trouble and perhaps to his feare, alſo being already ſenſible of his preſent ſmart, and ſuſpecting further danger. So many froward men when they have to their utmoſt injuried others, and intended more; but when their cauſes are tryed and prove deſperate in right, they will yet ſtill create perverſe matters to moleſt their neighbours, and the more they ſinke in the maine of their intendment, the more impetuouſly will they ſeeke to perplex and trouble them.

XII.

All relations and conditions have a mixture of ſome Wormwood or Gall with them, they are not all honey; but like Bees they have a ſting of griefe and trouble. A man may have bitterneſſe with his ſweeteſt comforts; ſo had *Abraham* with his good wife *Sarah*, ſhe was twice taken from him. Mr. *Reyner*, Precepts for Chriſtian practiſe.

XIII.

There is a magneticall attractive force in the Queen-Bee, ſo that what the Loadſtone is to the iron, is ſhe to the reſt of the Bees, and therefore whereſoever ſhe is will they be alſo. And no leſſe attractive and powerfull is Chriſts love in us, our hearts are heavy and downwards of themſelves, but his love drawes us upwards, and makes us heavenly-minded, it makes us deſire further and further communion with him, ſtill there is a magneticall attractive force in Chriſts love whereſoever it is, it drawes the heart and affections after it. Dr. *Sibbs*, Bowells opened.

XIV.

Waſpes and Hornets feed on fleſh, carrion, dead Bees, flies, almoſt any thing; but the Bee is a neate and curious feeder, ſhe

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she sucks and extracts the quintessence of flowers, which she chimically distills in the Limbeck of her belly; and thus prepared layes it up for future-food. So the Christian soule in this respect is a Bee that will not feede on worldly carrion or sinfull pleasure, but on Christ and spirituall things. The soule of a carnall and naturall man useth to feede upon dust, carrion, earth, and earthly things, when the soule of a true Christian that hath the taste of grace, feedes neatly, it will not feede on that which is base and earthy, but upon heaven and spirituall things. The perpetuall everlasting intercourse between Christ and a Christian, is his maine happinesse here, and his eternall happinesse in heaven.

XV.

Mr. *Hoard*, Soules misery.

Temptations to sinne come about us like Bees (buzzing into our mindes evill thoughts, and preparing to sting by drawing us into consent) but it is in the name and by the power of the Lord that we do destroy them; and therefore the Apostle

Rom. 16. 20. saith expressely; *The God of peace shall tread downe Satan under your feete.* If he be trodden downe, it is God that doth it for us.

XVI.

Whosoever dallies or playes with the Bees at the hives mouth, doth it with his owne perill, for although at first he be perhaps neglected or assaulted but with one or two, yet if he persists in his folly or fool-hardinesse, he shall quickly find more fists about his eares then his owne, and not escape foot-free. Would we not be overcome and foyled by temptations, conjure them not up, dally not with them, but if they be risen, quickly lay them, stifle them in their birth, and they will expose us to no further trouble or danger; Though flax (saith one) be never so catching, a sparke of fire may fall in, and yet not enflame if it be espied and taken out suddenly ere it have time to insinuate its force into the combustible matter, and so evill motions if quenched at the first kindling, seldome breake out into a flame of rebellion. But if we neglect them, bid them welcome,

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welcome, or parlie with them, or pleaſe our ſelves in them (though with no intent to commit ſinne) luſt will *incaleſcere* wax hot and conceive, and then the next thing we are like to heare of, will be the birth of ſome foule ſinne or other.

XVII.

There is a kinde of life in the Worme (the firſt but imperfect birth of a Bee) but yet neither ſeeing nor heareing, nor locomotive faculty, though it ſtirres in it's cell and receives the food that is brought to it, yet can it doe nothing for it's benefit or defence, or others pleaſure or profit. And as life is thus ſhut up in this imperfect creature, till by a further birth and tranſmutation it receives a new and better life; ſo is the light in a naturall man ſhut up before regeneration, all the light they have doth but glowe in their breaſt, ſhewing it ſelfe there (as a late reverend Divine) and making it evident that they have ſuch knowledge, but it is not a candle that enlightens all the roome, that enlightens all the corners of the ſoule. Take the light of a Starre in a darke night, and compare it with the light of the Sunne, though never ſo little: Looke in what meaſure it appeares, it ſcatters the darkneſſe from Eaſt to Weſt: So there is a light in the mindes of carnall men, which is but as a Starre in a darke night, which doth not take away the darkneſſe, but in the regenerate it is a ſanctified light, like the light of the Sun, not ſhut within a narrow compaſſe, but ſpreading it ſelfe unto all the parts of the ſoule: Or as if a Candle be brought into a darke roome it lightens all the houſe, but if it be a ſparke of fire, it ſhowes it ſelfe, and glowes and does no more, it doth not enlighten the houſe.

Dr. Preſton, Saints qualification.

XVIII.

Many things in the nature of Bees when we have moſt ſtudiouſly enquired after them, can we not find out and certainly reſolve and determine of, as concerning their manner of generation, the duration and continuance of the Queene-Bee, with their methods and orders in ſending forth their firſt ſwarme, yet doe we where we are unable to find out certaine grounds

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concludeall to be done diſcreetly and orderly, wiſely and wonderfully. And ſhall we not ſuſpect and check our ſhallow conceite and judgement? when it carries us to queſtion and reaſon about Gods providence, about diverſe things below, and not ſcruple our wiſdome, when we cannot ſee the cauſes of things, and Gods courſe in diſpoſing of them, when he deales diverſly, and not as we would thinke in our reaſon; yea and ceaſing from our wiſdome to ſearch into things more then we can comprehend. If in finite and ſmall creatures we poore mortalls are often nonpluſt and at a ſtand, let us not be too buſie to know the reaſon of his counſells and doings, but aſcribe all to his infinite wiſdome.

XIX.

Dr. *Challoner* on *Act.* 14. 17.

God exhibits evident tokens of his goodneſſe to all men, even then when they are afflicted with diverſe and ſundry calamities, that when others like Drones doe gather honey, but from the hive; a true beleever ſhould gather it even from thiſtles; and when weaker veſſells beare ſaile only in a calme, a true veſſell of Chriſt ſhould ſaile beſt to his wiſhed port in a ſtorme.

XX.

Dr. *J. King*, Lectures on *Jonas.*

Almoſt of the ſhadow, ſaith *Pliny* (rather then ſubſtance) of a very ſmall living creature, nature hath made an incomparable thing. The Bees never loſe a day from labour, if the ayre will give them leave to worke. And when the weather is louring and troubleſome, they cleanſe their hives, and carry out the filth; They keepe watch and ward at the gates, as they doe in Campes; The Drones they give houſe-roome unto, but (becauſe they labour not) when they have no need of them they drive them from their dwellings. Goe to the Bees, O ſluggard, conſider their wayes, and be wiſe, they are but ſmall among fowles, yet doth their fruit exceed in ſweetneſſe (ſaith the ſonne of *Syrach*) and their labour in greatneſſe. And goe to the Bees you Magiſtrates of the earth, and learne from that little kingdome of theirs, to uſe the vigor and ſharpneſſe of Diſcipline againſt our unſerviceable Drones, who like paralytick members

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in the body of man, looſe and unbound in the joynts of obedience, ſay to the head command us not, for we will not ſtirre at thine appointment.

XXI.

Many courteous natures are as waxe, ſooner able to receive the impreſſion of an admonition, but leſſe able to retaine it. Againe, a more heroicall nature is as wax, not ſo ſoone admitting the print, but ſurely keeping the print being made. Many at the firſt receiving of an admonition moſt hardly, have after moſt profited by it, and others receiving an admonition very gently, have loſt the fruits of it very negligently. Mr. *Greenham*, Grave Counſells.

XXII.

Experience may make us bluſh to ſee how the Bees naturally foreſee ſtormes and tempeſtuous weather, and therefore either flie not abroad at all, or not farre from their hives; that they may preſently on the firſt alteration of the weather repaire home in ſafety: but man alone either unſenſibly doth not foreſee, or unadviſedly will not avoyd the perilous times to come. This folly of the Phariſees our Saviour reproved, ſaying, *When it is evening yee ſay faire weather, for the ſkie is red; and in the morning yee ſay, to day ſhall be a tempeſt, for the ſkie is red and louring. O hypocrites, yee can diſcerne the face of the ſkie, and can yee not diſcerne the face of the times?* Mat. 16. 2,3.

XXIII.

God never ſuffereth evill, but for ſome great and ſecret good, as *Moſes* ſaith, *He cauſed him to ſuck honey out of the rock, and oyle out of the hardeſt ſtone.* Oh the infinite wiſdome and power of God! out of the drie and ragged rock of our ſinnes he draweth the ſweet ſap of humility from us, and of mercy from himſelfe to the ſweete ſafety and felicity of our ſoules. Sr. *John Hayward, Davids* teares.

XXIV.

Riches cannot make men happie by their owne nature, not

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only becauſe they are unſatisfactory, deceitfull, and inconſiſtant, but becauſe in the indiſpoſition in our ſelves; they are like the eating of honey to aſſwage the boyling of a chollerick ſtomack, a little pleaſing to the taſt, but much increaſing both the paine and danger of the diſeaſe.

XXV.

When a Bee hath once loſt her ſting, ſhe may trouble a while with her buzzing and violent ſtriking, but can doe no further hurt; ſo afflictions and troubles, whoſe ſting is pulled out in the things that Chriſt ſuffered and was conquerour for the Elect. I ſay, the ſting of harme is taken out of the croſſes that God ſendeth for the humbling of his Children or Church. And they are ſent to feare them, not to deſtroy them, as the deſtructions that come on the ungodly with their ſting in them.

Mr. *Roberts* on 130 *Pſalm.*

XXVI.

Set your mind and thoughts on heavenly things, which are able to ſatisfie you; elſe like the Bee, you will flie from place to place, becauſe earthly things doe not ſatisfie you.

Mr. *Harris*, Theorie and pract. of prayer.

XXVII.

Moſt men will commend the Bee when they feed of her honey, and perhaps with ſome coſt and trouble ſeek her preſervation, but if ſhe once cauſe a little ſmart with her ſting, then they are quickly out of patience, and exclaime as much againſt her, and will be at no further paines and coſt for her ſafety: So many men will be content to ſerve God, as long as they may withall advantage themſelves, but to ſerve him and deny themſelves, is a worke which they have not learned. *Ephraim loveth to tread out the corne*, ſaith the Prophet; you know the mouth of the Oxe was not to be muſled that trod out the Corne, he had his worke and reward together.

Hoſ. 10. 11.

XXVIII.

When honey is expreſſed from the combes, if there be any cor-

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corruption or droſſe in it, that will quickly being lighteſt aſcend upmoſt, but the pureſt honey will ſinke (unſeene) to the bottome. So when Satan diſquiets the heart, that which is pureſt and ſhould moſt comfort will ſinke, and be out of ſight, but our ſinnes and corruptions will ever be before our faces.

XXIX.

The induſtrious Bee is diligent to gather honey, and when ſhe hath filled her hive is chaſed out of it and her life oft times by fire and ſmoke, that the profit may be ours: ſo that the paines and labour are only hers, but the advantage and profit is ours. And the paines of Chriſts wounds were his, but the benefit ours, the holes in his hands and ſide were his, but the honey which iſſued out was ours: in one word, the price which he paid was his, but the inheritance which he purchaſed was ours, he alone without any demerit of his ſuffered our puniſhment, that we without merit of ours might obtaine his grace. *Auguſt.*

XXX.

Bees diligently apply themſelves to their worke early and late, neglecting no occaſion, they are exceeding intent upon it, much taken with it, and almoſt over-whelmed in their eager and delightfull paines, and that all the time the ſeaſon continueth, for ſtormes and rainy weather may come, and then they will be neceſſitated to lye ſtill, or winter will come, and then there is nothing to be gotten, and if they have not ſufficiently before-hand provided and furniſhed themſelves, they muſt needes ſtarve and dye. And ſhall not men doe good and get good, while they have libertie and opportunity, even give themſelves up unto it, and that with all their might. Many a Chriſtian is kept from doing good, by reſtraint, by ſickneſſe, by worldlineſſe, by buſineſſe, by an unwilling and hard heart, howſoever by death, when the winter, when night comes, there is no more working. How dolefull will the priſon, ſickneſſe and death be, when conſcience ſhall pinch us for our libertie, health, and life abuſed? We may therefore juſtly uſe the argument of the Epicure; *Whatſoever thy hand findeth to doe, doe it with* Eccleſ. 9.

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with all ſpeed, becauſe there is no knowledge, wiſdome, nor invention in the grave whither thou goeſt: but here is that which addeth weight unto it, before we come unto the grave, we may come into this or that ſtrait, that ſhall diſable us almoſt as much as our grave. And therefore while we have any ability or opportunitie in any kind to glorifie God, let us not be negligent, but ſay with the Pſalmiſt; *As long as I have any breath I will praiſe the Lord.* And with that Valiant Captaine that defended his Ship with his left hand, when his right hand was cut off, and with his teeth when his left hand was gone. If we are diſabled one way for doing good, let us try what we can doe another, if by our tongues, our pennes, our hands, our geſtures.

D. Dike, Evang. hiſt.

XXXI.

Some young Queene-Bee in the departure of the laſt Colonie, will ſteale forth with her that is deſigned Leader, becauſe in her preſent ſtate (by ſtaying behind) ſhe is ſure to periſh; In her going forth there is roome for hope, and poſſibilitie of life, if ſhe can attaine the throne. Beleevers that have been formerly reduced unto extremities and impoſſibilities within themſelves, looking upon God as omnipotent, and ſo able to ſave; as mercifull, and in Chriſt reconcileable, and ſo likely to ſave if he be ſought unto: reſolve as the *Lepers* in the famine of *Samaria*, not to continue in the ſtate they are in, nor yet to returne to the Citie, to his wonted haunts and wayes, where they ſhall be ſure to periſh, and in the latter is a poſſibilitie not to periſh. Therefore take up a concluſive purpoſe to truſt Chriſt, and if I muſt periſh, yet he ſhall reject me, I will not reject my ſelfe, I will goe unto him.

XXXII.

When Bees rob other hives, a ſpeciall way to divert them, and cauſe them to deſiſt and give over, is by making them worke at home, by running a pen-knife through the hive, and ſo (opening their combes) let out their honey, which they will ſeeke preſently to ſtop up againe, and let their neighbours alone. Thus *Hanibal* was wont to ſay, that the only way to fight

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fight against *Rome* was in *Italie*, and this *Scipio* happily experimented upon the *Carthaginians*.

XXXIII.

If our lippes drop honey by the preaching of Gods Word, and the ſweetneſſe of his Doctrine, it is good and commendable; but if our hands drop Myrrhe by the crucifying of ſinne, and the mortification of our earthly members to the obedience of Chriſt, and the perfect imitation of Chriſtian holineſſe, it is moſt comfortable and heavenly. Dr. *Wall*, Ser. on *Cant.* c. 8. 6.

XXXIV.

As the wittie Bees when they goe about to fill their combes with ſweet honey, ſuck firſt upon the ſweeteſt flowers of the fields and gardens, and then carrie the ſweete juice into their hives; ſo ought beleevers before they enter on their pravers to fixe their cogitations upon the two ſweet flowers of power and love, which they find in the name of the Father, and then carry the pure juice of them, into the inward hives of their ſoules and conſciences, and ſo ſhall they make a moſt precious honey-combe of all ſpirituall devotion. R. *Meredeth* on *Joh.* 6. 13.

XXXV.

Honey and oyle are uſed by the Spirit of God for the two Emblemes of peace and plenty, as we may read in the ſong of *Moſes*, ſaying *He made him ride on the high places of the earth, that he might eate the increaſe of the field, and he made him to ſuck honey out of the Rock, and oyle out of the flinty Rock.* Deut. 32. 13.

XXXVI.

I eate my honey-combe with my honey: hereby is underſtood that peace which our Saviour hath made betwixt our Saviour and us. The ſinne of *Adam* and *Eve* in Paradiſe made the breach between God and mankind, the death of Chriſt made the atonement and reconciliation; *When we were enemies we* Mr. *Rollenſon*, Ser. on *Cant.* 5.

were

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were reconciled to God by the death of his Sonne. As then *Sampson* in his Riddle said unto his companions; *Out of the eater came meate, and out of the strong one came sweetnesse:* which was meant of a dead Lion, in whose belly Bees had hived and made honey: so I may say of Christ, for he was the Lion of the tribe of *Judah*, and from him being crucified for our sinnes, and slaine for our redemption, we receive our honey and our honey-combe, that is to say, peace with God the Father. But for the honey-combe, why should Christ eate it? Wolves are very hungry that will not leave the bones till the morrow: and so is Christ, though he be not a Wolfe, yet he is a Lambe that is both hungry and thirsty, till he have taken away the sinnes of the world: and therefore he eates his honey-combe with his honey: so greedy is he to cancell the hand-writing which was against us, so desirous of our peace and reconciliation.

Zeph. 3. 3.

XXXVII.

Beleevers must not flie low and close to the ground, like Bees against a storme, but raise their flight to a high pitch, even as high as the most high; as did *Moses* when he saw him who is invisible; for *mens quavis ave levior cum deus pennas aptarit, prætervolat montes*, saith *Chrysostome*. The soule when God hath once furnished her with wings flies higher then any bird over the highest mountaines, and so (as the same father saith elsewhere) as God is said to be in heaven, and yet is also here on earth, so we that are here on earth are yet also in heaven.

Chrysost.

Idem. hom. 16. in Epist. ad Hebr.

XXXVIII.

As honey is not truly honey when it hath lost its sweetnesse, no more is the death of the righteous truly death, having lost it's bitternesse and fearfullnesse and terrors in the godly.

Dr. *Kilbie*, Ser. on 1 *Cor.* 15. 55.

XXXIX.

The Spider is never the more commendable, because he weaves his web out of his owne bowells: neither the Bee despised, because she gathereth her honey out of diverse flowers.

Dr. *Cleland* on *John* 4. 6.

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The citing of humane Writs for illuſtrating points of Divinitie, is not ſo common as commendable, if it be done without vanitie and oſtentation, making choice of the beſt Authors, for better underſtanding of the Text, and more cleare declaration of the truth.

XL.

The Bee for her honey pleaſeth many, but for the ſting diſpleaſeth not a few; ſo mildneſſe hath bent, where ſeveritie could not breake.

XLI.

As one will know more of the ſweetneſſe of honey by one taſt of it, then by a hundred diſputations and diſcourſes of it, ſo to ſpeake of ſpirituall joyes to ſuch as have not felt them is ridiculous, becauſe they are knowne by apprehenſion not by diſcourſe, and to them who have felt them, it is needleſſe to diſcourſe of them, for this doctrine is better knowne by one experience, then by a hundred rules. Dr. *Balcan*, Qual. on *Pſal.* 26. 5.

XLII.

Mors is *Morſus*, death is but a biting, not a conſuming and utter devouring, as he that biteth taketh ſome and leaveth ſome, ſo death getteth a morſell of fleſh, as the Kite taketh garbadge from the dunghill, and the Dogs offall from the ſhambles, but the ſoule it meddleth not with. I cannot therefore better compare the grave then to the honey-combe, where is both honey and waxe. The honey of the ſoule is taken out, the wax of the fleſh remaineth behind, till the reſurrection of juſt men. *Sen.* Dr. *King* B. of *London* on *Iſai.* 38. 17.

XLIII.

The waxe that is affixed to Letters patents, howſoever for ſubſtance it be the very ſame, that which is to be found every where, yet being applyed to this uſe, is of more worth to the Dr. *Uſher* on 1 *Cor.* 10. 17.

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Patentee, then all the waxe in the Countrey beſide: ſo ſtandeth it with the outward Elements in the matter of the Sacrament; The bread and wine are not changed in ſubſtance from being the ſame with that which is ſerved at ordinary Tables, but in reſpect of the ſacred uſe whereunto they are conſecrated, ſuch a change is made that now they differ as much from common bread and wine as heaven from earth.

XLIV.

Dr. *Hall*, Med. and Vowes, *Cent. 3.*

As Waſpes making muſick about a gally-pot, ſhew plainly that they came only for the honey that is in it: So the rich man hath many friends; although in truth riches have them, and not the man. As the Aſſe that carried the Egyptian goddeſſe had many bowed knees, yet not to the beaſt, but to the burden; For ſeparate the riches from the perſon, and thou ſhalt ſee friendſhip leave the man, and follow that which was ever her object: while he may command and can either give or controll, he hath attendance and profer of love at all hands; but which of thoſe dares acknowledge him when he *is* going to priſon for debt.

XLV.

Mr. *Stock*, Com. on *Mal.* c. 3. v. 5.

Chryſoſt. ad pop. Antio. hom. 21.

As they who temper bitter cups for children, firſt rub the mouth with honey, that that heedleſſe age when it ſhall perceive the ſweetneſſe, ſhall not feele and feare the bitterneſſe: ſo deale witches and wizards, uſing good words, lawfull meanes and prayer, but as *Chryſoſt.* for that cauſe hate and deteſt them the more, becauſe they vilely abuſe the name of God, profeſſing themſelves Chriſtians they doe the workes of Heathens; for ſo the Devills confeſſe the name of God, and yet were Devills ſtill.

XLVI.

Dr. *Lake*, Expoſ. of firſt Pſal.

Gods Law, ſaith *David*, *is ſweeter then honey and the honey-combe*; the meaning whereof is, we muſt not be mercenary in his ſervice, but the pleaſure we take in it, muſt be the cauſe why we

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we intertaine it, therefore it is not without cauſe that God requires the heart, yet he will have it ſeaſoned with love. *Thou ſhalt love the Lord thy God with all thy heart: and love is the fulfilling of the Law.* Deut. 6. 5. 1 Tim. 1. 5.

XLVII.

He that will have a good conſcience, that ſhall give in good evidence for him, and pronounce a comfortable ſentence on him, muſt beleeve well and live well, faith doth purifie the heart, and a good life beareth the fruit that aboundeth to our reckoning, when we judge our owne ſoules. But a man muſt not looke to have this bleſſing of a good conſcience ſuddenly, *Vade ad formicam piger*; ſome read it, *Vade ad apem*, Goe to the Bee, O ſluggard, ſhe gathereth her food in ſummer, whereof ſhe maketh uſe in winter. Gods Bee, that is a man that will have ſuch a good conſcience, riſeth early, haſteth to the Church, heares often, prayes often, meditates often, and ſo doth acquire this abſolving conſcience, *Colligentem in æſtate videre potes, comedentem in hieme videre non potes.* The outward meanes which he uſeth are viſible, but the inward which when time ſerveth he reapeth are inviſible. *Auguſt. in Pſal. 31.* *Auguſt.*

XLVIII.

Bees are not like the Bramble that receive all good and yeild none to others, to their dependants: but are like the fig-tree, the vine, the olive, they that belong to them, that care for them, are all the better, for they are inriched by them. If the Bees have any excellency, the Bee-maſter ſhall communicate with them. A good patterne for Kings and Governours, who ſhould herein imitate the Bees; when a man ſeeth an excellent worke, he gueſſeth that the workman was excellent, though he ſeeth him not: ſo the eminency of the Governour may be ſeene when he is not ſeene, it may be ſeene in the eminency of his people.

XLIX.

Bees ſometimes ſting, but ordinarily without any great or

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long prejudice. The danger is nothing in compariſon of the biting of an Adder, which is even unto death, death ſpeedie, death painfull and wofull. and that as naturally and as inevitably as *Opium* procureth ſleepe, or *Ellebore* purgeth, or any poyſon killeth. So though every ſinne (unrepented) hath wrath and judgement following of it hard at the heeles, yet ſome ſinnes are more pernicious, Woe and alas, ſorrow and ſtrife, ſhame, povertie, and diſeaſes are enough as *Solomon* notes to make drunkenneſſe odious, but becauſe (as he obſerved) drunkards are men paſt ſhame and grace, ſenſleſſe of blowes, and therefore much more of reaſons and words, being bewitched and befotted with the love of wine, will eaſily over-ſee and over-leape theſe pettie woes, therefore *Solomon* ſets before their eyes, the direfull end and fruit, the black and poyſon-full tangle of this ſinne; *In the end it ſtingeth like a Serpent, it biteth like an Adder*; if once a cuſtome, ever a neceſſitie. Wine takes away the heart, and ſpoyles the braine, overthrowes the faculties and organs of repentance and reſolution. And it is juſt with God, that he that will put out his naturall light, ſhould have his ſpirituall extinguiſhed, he that will deprive himſelfe of reaſon, ſhould loſe alſo the guide and Pilot of reaſon, Gods Spirit and grace.

Dr. *S. Ward*, Ser. on *Proverbs* 23. 29.

L.

Bees (howſoever ſome conceipt to the contrary) are much advanced and advantaged by the winter: there is thereby not only a preparing of the earth for a vigorous production of flowers: but a long reſt and ſleepe doth ſtrongly diſpoſe and fit them both for breeding and alſo honey-gathering. Whereas we may obſerve, eſpecially in dry ſeaſons, though the weather be very faire, and there be ſome flowers, yet are they not very beneficiall. And it is needfull for Chriſtians to find the preſence of Chriſt in the way of humiliation and debaſement, cauſing us to afflict our owne ſoules, as to feele his preſence, joy and comfort. In this life we cannot be without this gracious diſpenſation. We may therefore comfort our ſelves, that howſoever Chriſt leaves us, yet he will alwayes leave ſomewhat behind him, as he left Myrrhe after him upon the handle of the doore, ſome

Dr. *Sibbs*, Bowells opened.

Cant. 5. 6.

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ſome Myrrhe is left alwayes behind upon the ſoule, which keepes it in a frame and ſtate of grace and ſweetneſſe. Myrrhe was one of the ingredients in the holy oyle, as it is; and ſo this leaving of Myrrhe behind him, ſignifies the oyle of grace left upon the ſoule; that inabled the Church to doe all thoſe things which are ſpoken of *Cant.* 5. 6.

LI.

Mercy comes naturally from God like honey from the Bee; but juſtice like the ſting, only when ſhe is provoked.

Mr. *Swift*, Ruine and repaire of kingdomes.

LII.

Bees in their firſt being (while wormes) are uncapable of any excellency, of any abilitie to profit themſelves or others: yet they muſt for a time abide in it, and then they muſt dye that they may be changed, and ſo become agill, able, uſefull creatures. As they which dye cloath doe not immediately change one contrary into another, but firſt turne a white into an azure, and that into a graine colour: And as thoſe that work in wax, cannot frame any new impreſſion in it, till the old be defaced: So the image of the Prince of this world the Devill muſt firſt be defaced, before the image of Chriſt can be formed in us, we muſt dye, before we can live.

LIII.

The Bee being to flie home to her hive, and fearing leaſt if ſhe ſhould be taken by the way with a rough winde, ſhe might perhaps be blowne about in the ayre, counterpoiſeth her ſelfe with a little ſtone, and ſo flies ſtraite home *. This teacheth us what we ought to doe, we muſt not be wavering and carried about with every blaſt of doctrine, like a reed ſhaden in the wind, but as the Bee is ballanced with a little ſtone, ſo we muſt be built on the chiefe corner ſtone, and grounded upon a rock and eſtabliſhed with grace, that howſoever the raine fall, or the floods ariſe, or the winds blow, or what times ſoever come, yet we may ſtand faſt in the ſtreet which is called *ſtraight*, alwayes

Ambroſ. de Virginitat. quoted by Dr. *Playfere* in his pathway to perfection.

* It is true only of the *Candian* Bees, if of any. Howſoever the Morall is not amiſſe. Act. 9.

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wayes following Chriſt directly towards the marke.

LIV.

Honey is very ſweet and pleaſant to the taſt, but eaten overmuch is bitter in the ſtomack, and the maker of it the Bee hath a ſting in her taile. Such are the delights and pleaſures of the world; therefore ſaith *Martiall* an ancient Biſhop, *Quid ad nos delectatio mundi*, what have we to doe with the delights of the world? you may call it as you will, pleaſure, paſſe-time, mirth, joy, but in Gods Dictionary it hath no ſuch name; but is there called *Adams* goodly Apple, which being eaten deprived them of Paradiſe: *Eſaus* red pottage, which being ſupt up, bereaved him of his birth-right: *Jonathans* ſweet honey which being but taſted, was like to coſt him his life. It may delight thee for a while, but it ſhall torment thee for ever. As any ſolid body, though it have never ſo faire a colour as crimſon, purple, azure, yet alwayes the ſhadow is black; ſo any earthly thing, though it have never ſo faire a ſhew, yet alwayes the ſhadow of it is black, and the delight thou takeſt in it, ſhall prove to be grievous in the end, there is bitterneſſe in this ſweetneſſe, a ſting in this Bee. And therefore *Philo* calls the world, *A ſweet bitter thing*: let us then account worldly delights not *Naomie* but *Mara*, becauſe it is nothing ſo much *Naomie*, ſweet and pleaſant at the firſt, as it is *Mara* and *Amara*, bitter and loathſome at the laſt.

Martial. Epiſt. ad Toloſ. c. 18.

Philo.

LV.

An heavenly mind turnes earth into heaven, like a Bee that ſucks honey out of (ſuppoſed) bitter herbes, and like unto fire that turnes into fire that which is caſt into it. As the good ſtomack doth turne even groſſer meats into good nouriſhment, whereas an ill ſtomack would turne the fineſt meates into bad juice.

D. Dyke, Evang. hiſt.

LVI.

Let a ſwarme remaine at the place where it was hived a day or

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or two, and then be removed to another ſtanding; yet for two or three dayes after will they either ſullenly keepe in (except the weather be very faire) or if they flie abroad and gather, repaire with their labours to the firſt place, hankering and flying about it moſt part of the day, ſome not at all returning back to the hive, but deſperately dying there, and the reſt for many dayes lingring about their firſt manſion. And are there not many in the world, who having ſtood in the way of ſinners, and ſat in the chaire of the ſcornfull, cannot be moved or perſwaded to alter their choice, but will doe well (to be angry) to be evill. And if feare of hazzard or hell, or love of benefit, allures and with-drawes them from the publique practiſe, yet ſhall they not from the inward liking and approbation, ſo that when he alters his ſtanding, gives over the practiſe of his ſinnes, ſeemes to be divorced from them, becauſe he hath a ſtation, an abiding elſe-where, in his open carriage ſomewhat altered, yet he flies about his former ſtanding, his thoughts and imaginations feed all day long upon his luſts, he reliſheth ſpeculative wickedneſſes, ſo that when he hath withdrawne himſelfe from his ſinne, and given it over, he may have a months mind after it, he may doe with it ſtill as the husband of *Michol* did, when by a ſtrong power, ſhe was taken from him, it would have hazzarded his life to have refuſed, yet ſaith the Text, *he came weeping after her a farre off*, he longed after her ſtill, and loved her ſtill. So a man may part with his ſinne after ſuch a manner, that ſtill he goes weeping after it, he would have it againe, he would faine enjoy it, if it were not for ſome greater danger, or ſome greater trouble that he expoſeth himſelfe unto: as you ſee in *Phaltiel*, it was not for want of love to his wife, that he parted with her, but it was out of a deſire he had to ſave himſelfe, to eſcape the danger of the Kings wrath, impriſonment, and death, that would have followed upon it.

LVII.

Bees are creatures fitted with naturall inſtruments for the getting of honey; they have long tongues to draw it out of the ſockets of the flowers, and they have nimble wings to carrie them from place to place, that ſo what is not in one field may be

be found in another, and they have quick sights to discerne, but most active is their smell. And they have a little bottle within them to containe the honey, when they have extracted it, and (which is more then all) delightfull willingnesse to employ all these abilities for the compassing of this end, and the thriveing in their labours by all the meanes and opportunities they have.

Dr. *Stoughton*, Righteous mans plea to true happinesse.

But the foole hath a precious price in his hand, but knowes not how to use it, he lets slip many golden opportunities, letting them runne like water besides the Mill, driveing no trade of knowledge with them, making no use of them for that purpose, and so soone loseth all the benefit of these meanes he hath: it is admirable to thinke how under the droppings of the Pipe a man should be drie, how that under the continued meanes of grace, a man may continue in deepe ignorance; it is terrible, I say, to thinke, that whereas delicious Manna, heavenly Nectar falls dayly about our tents, as it were, that if a man would vouchsafe to step out of his doore, and carry his Omer in his hand he might fill it every day. But if men will not vouchsafe the gathering of it, never make use of the meanes of grace that God offereth, but will be as childish and as foolish as those that goe to the Market, they goe there for some businesse, but when they come there (like fooles) they goe see this gay thing, and the other gaudy thing and so forget utterly their errand, and goe home againe without it; they come to Gods house to see and to be seene, to prate with this partie, and gape on another, and so let all fall besides them, without minding what they heare, or to know and remember it; they may have excellent meanes, and yet thrive not, make no advantage of them: but he that will thrive and increase in knowledge, must make precious account of the meanes, laying up something out of every opportunitie that he hath.

LVIII.

Dr. *J. Taylor*, The doctrine of repentance.

There can be no habit of some sinnes, as in parracide, and in the willfull murther of our selves: all their malignity is spent in one act, and the event is best declared by one of them. The man dyes in his sinne, in that sinne which excludes him from heaven. Every act of these sinnes is like the stinging of Bees.

—*Ani-*

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—Animamque in vulnere ponit.

He cannot ſtrike againe, he can ſinne that ſinne over no more, and therefore it is a ſingle act that dammes in that cauſe, unleſſe he repent truly and effectually.

LIX.

Bees ſting ſeldome when they conflict with Inſects, but when they contend with men or beaſts they ſting readily, their rage is as high as their ſuppoſed enemies power, ſo that it is evident (by an inſtinct of nature) they are not ignorant of their owne danger, and yet to ſatisfie their ſpight, out of a bad cuſtome, though naturall, will undoe themſelves. Such is the violence of cuſtome in ſinne, which is the Law of ſinne, that by it, a man is over-ruled againſt his will, he cannot leave ſinne if he would. For as an old diſeaſe hath not only affected the part of it's proper reſidence, and by it's abode made continuall diminution of his ſtrength, but made a path alſo, and a channell for the humours to runne thither, which by continuall defluxion have digg'd an open paſſage, and prevailed beyond all the naturall powers of reſiſtance. So is an habituall vice, it hath debauched the underſtanding, and made it to beleeve fooliſh things, it hath abuſed the will, and made it like a diſeaſed appetite, in love with filthy things. It is like an evill ſtomack, that makes a man eate unwholſome meate againſt his reaſon. That's a ſad calamitie when a man ſees what is good, and yet cannot follow it, nay that he ſhould deſire it, and yet cannot lay hold upon it, for his faculties are bound in fetters, the habit hath taken away all thoſe ſtrengths of reaſon and religion, by which it was hindered, and all the objections by which it was diſturbed, and all that tenderneſſe, by which it was uneaſie; and now the ſinne is choſen, and be'eeved, and lov'd, it is pleaſant and eaſie, uſuall and neceſſary; *Scibam ut eſſe me deceret, facere non quibam miſer,* I knew it well enough, how I ſhould comport my ſelfe, but I was ſo wretched, that I could not doe it. *Idem in eod.* *Plautus in Trinumo.*

LX.

Bees and Waſpes, though they ſting not in the extremitie of

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winter, nor when they are benummed with cold, yet are full of poyſon, ſo that it is not want of deſire to doe miſchiefe, nor yet want of malice, but only want of abilities. And there be ſonnes of *Belial*, that will fawne and humble themſelves with a pretence of much affection; *Joab*-like, *Art in health my brother?* yet beleeve him not, for there are ſeven abominations in his heart; he waites but an opportunitie or ability, and his ſword ſhall be in thy fift rib they were not voyd of malice before, but only wanted power.

LXI.

Bees and Flies are often entangled in the Spiders Cob-web, and miſcarry; but Waſpes being ſtronger creatures eaſily breake through and eſcape: poore men ordinarily being taken in their crimes, endure the ſeverity of the Law, but the wiſe and great ones hide their counſells deepe, or carry their actions cunningly, or if they be found out, yet as *Anacharſis* ſaid, by their greatneſſe they breake through the Lawes, and ſo eſcape.

LXII.

If the Waſpes rob, and the Drones profuſely ſpend too much, to the prejudice of the Common-wealth, the Bees then beſtirre themſelves, and chaſe away ſome and chaſten others. And it is no leſſe the Magiſtrates duty to procure the publique good, *Et videre ne quid reſpublica detrimenti capiat.* To provide that the Common-wealth ſuffer no detriment or harme. If therefore any hinder the publique good, or ſhall worke any diſadvantage or damm:ge unto the State, the wrath of the Magiſtrate ought to turne againſt ſuch a man. And as God when his Lawes are broken, or himſelfe any way diſhonoured, waxeth angry with men: ſo theſe Gods on earth, when men by contemning their authoritie, and denying them due ſubjection, goe about to diſturbe and ſet combuſtion in the State, have juſt cauſe to be angry, and to ſeeke revenge upon them.

Mr. *Downe*, Subjection to the higher Powers.

LXIII.

Drones, though meek creatures, yet (provoked by their fellowes)

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lowes) will fight and grapple together. But Drones never voluntarily offend any, nor yet (provoked) turne againe, all their fight is flight, either to goe out of the hive, or to lye many together in a heape in a corner of the hive, that so their numbers (holding together by their feete) may in some sort secure them. And in vaine were resistance where nature hath denied a sting. Wrath and desire of revenge in him that wanteth power, is vaine and foolish, according to that of the Poet:

Quid stulti proprium? non posse et velle nocere. It is the propertie of a foole wanting abilitie, to desire to doe hurt. *Auson.*

LXIV.

The Bees combes are perpendicular from the top of the hive to the bottome, and so they are very long, but yet they have a breadth likewise, the depth of the cells on either side, which yet holds no proportion with the length: The repletion of the cells with various fillings, some with Bee-bread, some with honey, some with brood, some halfe full, others are emptie, notes the variety of comforts and blessings, which in this life men enjoy, but some more and some lesse. There are vicissitudes and changes in the life of a Christian, a diversitie of dispositions and dispensations, to which they are subject in this life. Sometimes with the Disciples on Mount *Tabor* ravished with joy, and by and by, when the cloud over-shadowes them, they are afraid. When the Lord lets us feele his mercies, we are alive, but if he hides his face, and sets our sinnes in order before us, we are sore troubled: but ordinarily we dwell more in the valley of *Bacha* then of *Beracha*, our mourning exceedes our mirth. The life therefore of a Christian may be compared to a web so mervellously mixed and woven of comforts and troubles by the hand of God, that the long threds thereof reaching from the day of our birth to the day of our death, are all of trouble, but the weft interjected with manifold comforts. Psal. 50. 21. *W. Cowper*, B. of *Galloway*. Heaven opened.

LXV.

Waxe left to it selfe growes hard, how much more the stony heart of man? God not ruling and working in his heart, it growes hard.

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LXVI.

Mr. *Cotton*, Expos on 1. Epist. of *John* c. 2. v. 17.

Amnon had a strong lust to his sister *Tamar*, but when he had fulfilled it, he hated her more then he loved her. So when we have fulfilled a lust, we are not satisfied with it, but say to it, arise, be gone; As a Bee having suckt something from one flower, goes to another, and then to a third; so we are soone weary of lusts, there is an emptinesse in the creature, it is no way able to satisfie the desires of mans heart, but they are soone weary, and therefore desire variety.

LXVII.

Diverse hives will conspire together to rob their harmlesse and innocent neighbours, but oftentimes when they have plundered and worried others, then doe they vexe one another, and warre among themselves. It is impossible that any true peace should be among the wicked, whilest they want the solder that should glew them together, faith; it is therefore no wonder to see the Egyptians against the Egyptians. *And they shall fight every one against his brother, and against his neighbour, Citie against Citie, and Kingdome against Kingdome. And they shall eate every man the flesh of his owne arme, Manasseh Ephraim, and Ephraim Manasseh*; for agreement in evill is not peace, but conspiracie, wicked mens combining themselves, may be a faction, no unitie, no amitie.

Isai. 19. 2.

Isai. 9. 22.

LXVIII.

As humility, like the Bee, gathers honey out of ranke weedes, very sinnes moving to repentance: So pride, like the Spider, sucks poyson out of the faireſt flowers, the best graces, and is corrupted with insolence.

LXIX.

Bees are painfull creatures, but they enjoy not all their labours, but readily contribute (out of their plenty) a portion

to

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to their keepers. *Sic vos non vobis.* Still supplying their owners neceſſitie out of their fruitfull and uſefull ſtore. And ſhall a man of more ſingular graces and faculties be idle, a burden to the world and himſelfe. If happineſſe conſiſted in doeing nothing God that meant *Adam* ſo happie, would never have ſet him about buſineſſe, but as Paradiſe was his ſtore-houſe, ſo alſo his work-houſe, his pleaſure was his taske, there is no ſtate of man that can priviledge a folded hand, our life is *vita pulveris non pulvinaris*, Hands, meanes, and moneys, men make the protection of idleneſſe, when as *Adam* commanded the whole earth, yet worke expected him. Mr. *Adams*; The barren tree.

LXX.

Robbing Bees of diverſe hives will joyne hands, and league together without jarring or diſcord, though at another time their hoſtility is continuall, their fewd implacable, their difference is irreconcileable. Nay Waſpes alſo, though there be a naturall antipathie betweene them, yet to doe a miſchiefe to a neighbour hive, will comply and unite together with them. There is a combination of the ungodly, even ſo farre as to the very participation of their eſtates; *Caſt in thy lot with us, we will all have one purſe*, they are entangled in mutuall amitie, like beds of Eeles, nothing but thunder can breake their knotts. *Is it much*, ſaith Chriſt, *that you love them that love you?* Robbing Bees and Waſpes doe it, *even Publicans doe the ſame.* Prov. 1. 14.

LXXI.

Bees are often ſuffocated and drowned in their owne honey, that which with induſtrie and labour they had gathered (the combes being melted with the heate of the Sunne or caſually broken) And the ſinnes of many, which they had wearied themſelves to act, often prove their ruine and deſtruction. *Sodome* might have ſtood for all the five Kings that had her battell, if the unnaturall fire of luſt had not drawne downe upon her unnaturall fire, I meane the fire of hell (as *Salvian* ſpeaketh) from heaven it was not. It was not *Titus* ſiege without, but the Zelots ſedition within the walls that diſpeopled *Jeruſalem*; ſtrowing *Salvian de Guber. dei lib.* 1. *Joſephus de bel. Jud.*

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Dr. *Fear's, Pandora* her boxe.

strowing her streets with dead carkasses, and dying her common Sewers with blood. It was not the *Assyrian* horse and Chariots, but *Jeroboams* golden Calves, together with their forceries, witchcrafts, and other sinnes unrepented of which destroyed *Israel*. *The enemies of a man*, saith our Saviour, *are those of his owne house*. *Plaucus Plautius* hiding himselfe in the time of the proscription, was found out only by the smell of his sweet oyles, wherewith he used luxuriously to anoynt himselfe.

Mat. 10. 36.

Camerarius Med. hist. cent. 1. c. 20.

LXXII.

Bees (as almost all other Insects) are in their first estate and condition very rude and imperfect creatures, they have none of the senses, except feeling and tasting, they only eate to live, and live to eate, and againe after a time they neither eate nor live, but dye to live. But as soone as they have transmuted their shape, they come forth goodly and beautifull creatures. In the valley of teares it is not perfect day, no not with the best Christian under heaven, but it growes by degrees till it be perfect day with them, which is at the day of their dissolution. Like to the earthen pitchers of *Gideons* men, when they brake their pitchers, the lampes gloriously shone forth and dazled their eyes; thus it is with a Christian, when these earthen pitchers and carkasses are broken, his light will shine forth gloriously, in the meane time we have light, we have lampes, but they are pitchers shining very dimly.

Judg. 7. 16. 20.

LXXIII.

The first death or transmutation of the Bees, is their profit and advantages, their excellency and glory, they dye but yet to live more nobly. And death to the godly is not the death of the man, but the death of sinne in the man: *Mors est sepultura vitiorum*. As the Worme which is bred in the tree (saith *Chrysostome*) doth at last consume it, so death which is brought out by sinne, doth at the length consume and destroy sinne in the children of God.

Ambr. de bono mortis. c. 4.

LXXIV.

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LXXIV.

The Mother-Waſpes and Hornets after they have wrought a while and procreated their kind, give over labouring and are maintained by the induſtry and piety of their off-ſpring. But Bees never ſue out a *quietus eſt* when they are old to diſcharge them from their labours, but as they are beſt acquainted by experience, what flowers are moſt advantagious and profitable, ſo are they more willing and able by practiſe to undergoe the honey-gathering labour, thus doth exerciſe increaſe ſtrength and diligence. Hypocrites with *Jehu* may drive on a while furiouſly, with *Joaſh* may hold out a great while, but at laſt they will give in, and be weary: but let a beleever exerciſe himſelfe in grace, and he will grow up in the Lord, and increaſe in ſpirituall ſtrength. A tree the more holdfaſt it hath with his roote in the earth, the more fruit it brings forth. They that walke dayly in a Chriſtian courſe increaſe ſtrength, they walke from ſtrength to ſtrength, till they meete their God in *Sion*.

LXXV.

The honey in *Sampſons* Lion is very fitly likened to the profit of afflictions; The aſſaults of affliction may be terrible like *Sampſons* Lion, but they yeild much ſweetneſſe to thoſe that dare encounter and overcome them, who know how to overlive the witherings of their gowrds without diſcontent or peeviſhneſſe, while they may yet converſe with God.

LXXVI.

Nothing is created for it ſelfe, but ſo placed by the moſt wiſe providence, that it may conferre ſomewhat to the publique good, the pooreſt creature yeilds ſome good wherein it doth imitate the goodneſſe of the maker, every thing is enabled with ſome gift for the univerſall benefit. Kine give us their milke, Sheepe their wooll, Bees their honey and waxe, every one paies a tribute to man their uſufructuary Lord.

LXXVII.

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LXXVII.

Mr. *Stock*, Com on *Mal.* c. 3. v. 11.

Gods power was no lesse in creating a little Bee then a great Lion; as the Clock-makers skill is seene in a little Watch, as in a great Clock; so Gods goodnesse is in the smallest and most ordinary matters, as in the greatest and most extraordinary.

LXXVIII.

Bees smelling a field of Cole-seede, though a mile remote from their hives, will directly fly thither, tempted with no other blossomes by the way, though much nearer; see them perhaps they may as they flie, but will not be diverted or withdrawne by them. And so many things are to be observed in our course in this world with our eye, which are not to be intertained into our delights and affections.

LXXIX.

Bees, while they are numerous and full, endure without regret or discontent the royall issue, but when by the emission of two or three Colonies, they find their numbers greatly empaired, their strength much weakened, then without delay they doe either destroy or chase them out of their hives. Beleevers while they are in a naturall estate, easily admitted the fellowship of any lust, were not much troubled nor vexed with Satans wiles. But as soone as their enlightened eyes beginne to see and discerne their miserie and danger from them, they labour to kill and mortifie, to subdue and crucifie every sinfull passion, and all the hellish brood of lust.

LXXX.

Basil. *Sen. de Clem.*

These are Natures unwritten Lawes, that every man the greater he is in place and power, the more slack he ought be to punish. And *Seneca*, the greater powers ought not to be hurtfull, if they be disposed according to Natures Law. The Bees have a Queene differing from the vulgar in greatnesse and brightnesse,

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neſſe, but herein eſpecially is ſhe different from them, for they are according to their bodies the moſt quarrelſome and angrie creatures that are, ſtinging thoſe that offend them. But the Queene hath no ſting (uſeth it not) for nature would not have her feirce or revengefull; Which ought to be a preſident to all Kings and Commanders in the world. Let them be aſhamed not to take example from ſuch ſmall animals, for mens mindes ought to be more moderate and compoſed becauſe of the great hurt, that they otherwiſe occaſion to them that they are diſpleaſed with. Oh that men, ſaith one, did loſe their power with their anger, and could hurt (as the Bees ſting) but once. *M. Antonius*, Sirnamed *the Philoſopher*, ſaid, that there was nothing that did more become a Commander then clemency: and therefore as *Claudian* reports, *Theodoſius* gave his ſonne *Honsrius* this counſell; Though we be overcome in every thing, yet in mildneſſe and clemency to yeeld to none. *Pyrrhus* king of *Epirus* for this is commended that being derided and reproached by certaine young men in their cups, he let them goe unpuniſhed, when one pleaded it was in their wine.

Tiberius as *C. Tacitus* witneſſeth in the beginning of his Empire expreſſed the like patience, for he diſſembled bitter and ſcurrilous writings, and would not have the Authors queſtioned, ſaying, in a free Citie their tongues ought to be free. A certaine Poet called *Magus*, girded at *Philemon* in his publique playes, afterwards being in *Philemons* power, he commanded his ſervant openly to cut off his head, but in private that he ſhould touch his neck with a naked ſword, and ſo unhurt to diſmiſſe him, firſt giving him nuts, cockalls, and balls and other childiſh toyes: wherein the Prince openly ſhewed that he had a ſting but would not uſe it. And to ſpeake evill of a Ruler is rather childiſh then manly. The ſame kingly vertue as in many other heroicall actions, ſo in their letters, *Theodoſius Arcadius*, *Honorius*, the Emperours notably approved. This was the ſumme of their Letters to *Rufinus*, if any reproached or diſgraced them out of levitie he ſhould neglect it; if out of anger and madneſſe, he ſhould compaſſionate and pitie it; if out of wrong and injurie remit and pardon it.

A. Alciat. Emblemat. 48.

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LXXXI.

Prov. 6. 6. *Solomon* the wiſeſt among the ſonnes of men ſaith, *Goe to the Piſmire*, &c. ſo thou ſhalt learne providence, in a faire day to provide a cloake for the tempeſt; in peace to foreſee warre, and in youth to lay up ſomewhat for old age. And maiſt thou learne ſo much from the Piſmire? And when thou walkeſt into thy Garden, and beholdeſt the induſtrious Bee, which with unwearied diligence fetcheth her food from a farre, and that (not as the Piſmire) for her alone behoofe & ſupply, but for the neceſſities and ſuperfluities alſo of the ſonnes of men; Nay doſt thou behold their admirable government, chaſt procreation, motherly affections to their iſſue, ſtout defence of their hives and houſes, with many other occurring paſſages from their birth to their death, which are in this Treatiſe more largely dilated, and canſt thou learne nothing? ſurely if thou (whoſoever thou art) ſeriouſly meditates on the particulars herein exhibited, thou canſt not but acknowledge that God is *Maximus in minimis*, &c.

LXXXII.

Dr. *Hall*, Med. and Vowes, *Cent.* 3. As a true friend is the ſweeteſt contentment in the world, ſo in his qualities he well reſembleth honey, the ſweeteſt of all liquors. Nothing is more ſweet to the taſt, nothing more ſharpe and cleanſing, when it meetes with an exulcerate ſore. For my ſelfe I know I muſt have faults, and therefore I care not for that friend that I ſhall never ſmart by. For my friends, I know they cannot be faultleſſe; and therefore as they ſhall find me ſweet in their praiſes and encouragements, ſo ſharpe alſo in their cenſure. Either let them abide me no friend to their faults, or no friend to themſelves.

LXXXIII.

Idem in eodem loco. An evill man is clay to God, Wax to the Devill; God may ſtampe him into powder, or temper him anew; but none of his meanes can melt him. Contrariwiſe, a good man is Gods wax, and

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and Satans clay: he relents at every looke of God, but is not ſtirred at any temptation I had rather bow then breake to God: but for Satan, or the world, I had rather be broken in pieces by their violence, then ſuffer my ſelfe to be bowed unto their obedience.

LXXXIV.

Bees obſerve a martiall poſture in all their carriages; ſome keepe guard at the gates, others like ſcouts watch at a remoter diſtance: Some within the hive, as Souldiers in Garriſon obſerve who goes in and out. So though that many follow their labours at home and abroad, yet others are warlikely employed leaſt they ſhould ſuffer from an unknowne or unſuſpected adverſary, for want of foreſight and preparation. Thus *Iphicrates* an Athenian Generall encamped in time of peace, and among his friends: yet ſtill entrenched his Armie, ordered his outworkes, ſet his watch, kept his *corps du guard*, laid out his centinels, and in a word, obſerved all Martiall Diſcipline, as if he had been in the heate and height of warre: and being asked by one of his familiars, what he feared, he anſwered to be ſurprized, and leaſt it ſhould fall out that he ſhonld be conſtrained to ſay, I thought not on it. Oh that Beleevers were thus wiſe to thinke of their latter end, and alwayes to mind when the appointed time of their change ſhall come, then would they be alwayes prepared to intertaine death, either ſecretly or openly. Jeſus Chriſt our grand Captaine, who valiantly triumphed over it, often inculcates this watchfullneſſe upon his Diſciples and Apoſtles, and in them on all beleevers; *Be yee alſo ready, for in ſuch an houre as you thinke not, the ſonne of man commeth.* Mat. 24. 49. And againe, *Watch therefore, for you know neither the day nor the houre, wherein the ſonne of man commeth.* Mat. 25. 13. And elſewhere, *What I ſay unto you, I ſay unto all, watch.* The *Sybarites* which were not enlightened with ſuch a Sunne, yet alwayes obſerved this cuſtome in their banquets, to have a deaths-head delivered from hand to hand by all the gueſts at the Table, to the end to admoniſh them not to be tranſported with intemperance, and to cauſe them to remember, that as they were nouriſhed of the *P. Cotton. Ser. de la Mort.*

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flesh of dead creatures, that they lived in dying, and dyed in living. And the *Egyptians* for the same reason carried in their processions a vessell of gold full of earth, which was as if a Herald should proclaime to all the assemblie in the words of the Prophet, *O earth, earth, earth, heare the word of the Lord.*

LXXXV.

J. Tarrovius in Psal. Passion.

The enemies of the Church are compared to Bees, feare not their multitude nor their rage; they are Bees not Lions, they buzze, they make a noise, they have stings but they cannot doe what they would, their power is lesse then their spight and malice, and they hurt not but with their owne certaine death and destruction. Beleeve then God in the midst of their machinations, and applaud thy selfe in their tumultuous projects, that all shall be frustrate and abortive. *Pulveris exigui jactu compressa quiescunt.* When God pleaseth he can but blow on selfe-conceited *Nymrods*, mighty hunters, oppressing and tyrannicall enemies, and easily overthrow them, and crush them to the earth, and breake in pieces all their counsells. If *Pharaoh* vex Gods people, asking *Who is the Lord?* Flies, Lice, and Caterpillers shall be his challengers and Conquerours, and aske, *Who is Pharaoh?*

Frid. Spanhen dubia Evangelica.

LXXXVI.

Isai. 7. 51.

Salmeron. tract. 31.

Honey was an usuall food for little children among the *Jewes*, wherefore *Isaiah* saith of Christ, *Butter and honey shall he eate.* By *honey* some say was designed the Divinitie of his birth, and by *butter* his humanity, but foolishly and besides the mind of the Prophet, whose words are cleare, and the sense open. As if he had said, *Immanuel* shall not only be a true God, but also a true man, that is, he shall feed of such meates as your children use to eate of, so that his education shall be common and ordinary, for fat and sweet meates are usually provided for infants, and especially honey among the Easterne people. So that by these words synecdochically at least is noted that his conception shall be miraculous, but not his education. The Propiet.

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phet ſubjoynes that there ſhould be found in him progreſſe or proficiency like unto other infants, namely, imbecillitie of knowledge to be limited and terminated till he was growne to ripereſſe of yeares, for then he ſhould be endowed with an excellent judgement not only to diſtinguiſh good and evill, but to chooſe the good and refuſe the evill. The complement of all which is found, *Luk.* 2. 52. *Phil.* 2. 7. To be equall with God on one ſide, and on the other that he humbled himſelfe. All which the Prophet would here have noted, although in ſomewhat obſcure words, with reſpect to the times and propheticall ſtile. Whence it is alſo evident that they doe altogether wreſt the words of the Prophet that inſert to that, and take it finally, as if the child ſhould therefore eate honey and butter, that he might know to refuſe the evill and chooſe the good. In a word, Chriſt is ſaid to eate the butter and honey, that is to be frugally educated with ſuch meates as were naturally afforded, for there was nothing more common among the *Jewes* then Butter, for moſt of them kept cattell. And as plentifull was honey, which their woods and forreſts did ſufficiently furniſh them withall.

LXXXVII.

Figuratively the ſudden and unavoydable deſtruction of the wicked is often in Scripture expreſſed by the melting of waxe. In ſome places it is ſpoken of the mountaines, to ſet forth Gods Power and Majeſtie. Firſt, Learne hence that God doth arme himſelfe as it were in the defence of his people, but not as men are wont to doe, becauſe he is furniſhed with ſo great power, that with a nod he can confound his adverſaries. Although therefore ſometimes he ſeemes to diſſemble, or not to take notice of their danger, yet will he in due time appeare in their behalfe, nor needes he much preparation for their overthrow, for the mountaines melt like waxe before him, much more ſhall crawling wormes. Secondly, let us be humbled before the powerfull hand of God, and acknowledge our frailtie, for we are in evaporating ſmoke, a vaniſhing ſhadow, a melting waxe. And if we have any ſtability, let us acknowledge that we have it from God, who alone confirmes, defends and preſerves us; who,

Rivet. Com. in Pſal. 68.

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who otherwiſe would quickly come to nothing, who were at firſt made of nothing, and have our preſent ſupport and ſubſiſtence in our God alone.

LXXXVIII.

The Queene-Bee never uſeth her ſting; and is therein a monitor to Great men and Princes, to labour for a meek and mercifull behaviour. Let Princes uſe their power for; not againſt their ſubjects.

Virgil Ænead. 4.

Non hos quæſitur munus in uſus.

Let them not hold too ſtrict a hand over the oppreſſed people, let it not be ſaid of their ſubjects, as it was ſaid of the *Romane* ſouldiers under *Severus*, that they were more afraid of their Captaine then of their enemies: if they diſhearten them who ſhall comfort them, or ſtand for them? Yet many Princes uſe their people (though ſuch as the world cannot paralell) as the Hawke in *Heſiod.* dealt with the melodious Nightingale, they plume them, and then devoure them. *Seneca* in his bookes of *Clemency* which Q. *Elizabeth* ſo highly eſteemed that ſhe gave them the next place to the holy Scriptures, ſaith, Let thy ſword not only be put in thy ſheath, but alſo tyed faſt in it; be ſparing of the meaneſt and baſeſt blood. It is for men of lower condition to fall into quarrells and ſtrifes; equalls may exchange blowes one with another without much danger. It ſtandeth not with the Majeſtie of a Prince to engage himſelfe in any quarrell or fight, becauſe he hath no equall to contend with him: ſo farre ought it to be from a Prince to brawle or wrangle, that the ſtraining of his voyce is unbefitting him upon any occaſion whatſoever.

Heſiod. op. et dies l. 1. Sen. l. 1. de Clemen. Camden. hiſt. reg. Elizab.

LXXXIX.

Bees are induſtrious in their ſeaſon, for they well know that the neglect of it is their irrecoverable overthrow and deſtruction. And this life is the ſummer and harveſt, wherein we muſt labour and watch againſt temptations. The death-bed or dying houre

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houre is a ſharp combate; unleſſe we have gathered into the hives of our ſoules the graces of faith and love, *&c.* Whereby we may live after death, and expect a certaine recompence: He which doth not this ſhall experimentally find in his winter, the darkneſſe of his minde, the Clouds of feare, the wind and froſt of judgement. The Bees draw out of the cels the old and ſtinking Bee-bread, ſo muſt we in our lives mortifie unprofitable and ſinfull luſts, whence great ſinnes may ariſe and be fomented. The Bee being weake with long ſhutting up in the winter, on the firſt opportunity of a Sunne-ſhinie day, renewes her ſtrength by comming forth and flying abroad in the heate thereof. And we muſt learne to raiſe up our dull and drowſie ſpirits by the word of the Sunne of righteouſneſſe. Let us therefore diligently beſtirre our ſelves in the ſummer and faire weather of the meanes, whilſt Chriſt the ſonne of grace ſhineth, while God and his Miniſters call upon us, otherwiſe another day many with *Eſau* ſhall ſeeke repentance with teares, and ſhall not find it.

XC.

The Commander hath a ſting, but uſeth it not for revenge: ſhe rules not by written but by natures Lawes, teaching that they muſt be ſlow to puniſh who are exalted to the higheſt Powers: and whatſoever Bee followes not the Queenes example, preſently repents of her temeritie, for ſhe no ſooner ſtings but payes the price of it with her life. Let Chriſtians heare and learne, who have a command *not to render evill for evill, but to overcome evill with goodneſſe.* *Baſil. hexamer. hom.8.*

XCI.

To find honey is to taſt the ſweetneſſe of a holy underſtanding, which then is ſufficiently eaten, when our underſtanding is kept under government or moderation, according to the meaſure of our ſenſe; for he is ſatiated with honey and vomits it, who deſires to dive into things he cannot conceive, and ſo looſeth that whereby he might be nouriſhed, and therefore weake under- *Greg. expoſ. Moral in Job c. 22.*

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understandings ought not to search into mysteryes above their capacitie and comprehension.

XCII.

Greg. Nazian. Gygnene. Carmin. liber. t. 3°.

We may read the writings of Poets and Philosophers, but yet wisely, to cull out of them, whatsoever is profitable, as also with a discerning judgement to avoyde whatsoever is hurtfull; and so to imitate the wittie Bees, who whatsoever flower they gather of, following nature as their guide, with a singular wisdome suck out only that which is profitable.

XCIII.

Hieron. Com. in Pro. c. 24. 33.

The doctrine of wisdome by *Solomon* is compared to honey and the honey-comb, because that as honey sweetens meates, so the word all other learning, but yet there is this difference in the signification of both, for honey because it is already prepared to eate, signifies the more superficies of the Letter, but the honey-combe where the honey is not expressed from the waxe, doth figuratively point forth the allegoricall signification, that the Veile of the Letter being withdrawne, the sweetnesse of the spirituall sense, but with some delay and labour may be perceived.

XCIV.

Idem Com. in Proverb. c. 25. v. 26. 27.

Honey too liberally eaten killes; so the searching after the knowledge of the Divinitie is sweet, but he which desires to search further then the nature of man is capable; his glory will oppresse and crush him; for as honey taken immoderately bursts the eater, so this enquirie the understanding that cannot comprehend it.

XCV.

Idem Com. in Proverb. c. 25. 16.

Hast thou found honey? Eate so much as is sufficient for thee, least thou be filled therewith and vomit it? hast thou found the sweetnesse of the understanding of heavenly things, which is afforded

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afforded and made knowne to the paines and labours of the ſpirituall fathers? As prudent Bees take heed thou deſireſt not to know more then thou oughteſt to know (be wiſe unto ſobrietie) leaſt whileſt thou ſeekeſt to underſtand the higheſt wiſdome, beyond thy abilities, thou loſeſt the knowledge of that which thou didſt throughly underſtand.

XCVI.

Epiphanius likens that man that finds out in others workes any thing profitable, to the prudent Bee, which flies to and fro and lights on every flower, but gathers only that which is profitable for her ſelfe. Whereas imprudent perſons receive that which is hurtfull ſooner then the good: Like the Scarabee that delights and lives in dung and ſtinke, and makes it her content and food, whereas to the Bee it is loathſome and offenſive. *Epiphan. contr. Hæreſ. l. 1. c. 3.*

XCVII.

Cyprian reaſoning againſt the Polytheiſme of the Heathen, ſaith, there is but one Lord God, for ſuch Majeſtie will not endure a corrivall. And this oneneſſe of the Deitie he cleares from the earth. Was there ever a partnerſhip in ruleing begunne in faith and ended without blood? The *Thebane* fraternitie was quickly broken, as a token of the deadly hatred between them. One kingdome could not hold *Romulus* and *Remus*, whom one womb contained and nouriſhed together. *Pompey* and *Cæſar*, though neare allied, yet in their jealouſie and emulation of Command brake aſunder all relations. Nay the Common-wealth of Bees is ſo jealous of the Principalitie, that it ſuffers not the royall Infants to ſurvive, but with an *Ottoman* cruelty murthers all. *Cyprian tract. quart. de idolorum vanitate.*

XCVIII.

The wiſe Bee gathers ſweet and wholſome nouriſhment from thoſe places and flowers which a vulgar judgement deemes worthleſſe and good for nothing; and a wiſe Chriſtian

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Hilar. in Psal. 134.

from those passages of the Scriptures where the words seemes carnall discernes spirituall excellencies. For as an unskilfull man comming into a field abounding with wholsome herbes, passeth by all as of no more use then grasse, but a skilfull Botanist doth otherwise. So doth a spirituall reader find spirituall advantage from every sentence; to the pure all things are profitable and pure, and if any place seemes uncomely, it is only to those that are such in themselves.

XCIX.

Mice are very hurtfull enemies to Bees, but not at all times alike. In Summer when the hives are full, and the Bees lusty and keepe a constant guard and watch, they seldome meddle with them; but in the winter when they are (benummed with cold) shut into the hives, and almost bereaved of their lives, then doe they without feare or hazzard rob and plundder them. And Satan our constant adversary takes advantage of professors: when they keepe a continuall watch and course in prayer, they doe not so oft miscarrie, but in the night of their ignorance, in the sleepe of their peace and securitie, when they can least espie him, doth he take advantage and by his wily, unseene stratagems overthrow many.

C.

Dr Hill, Occasionall Med.

The seeds of discord were scattered in every furrow of the creation, and came up in a numberlesse variety of antipathies. Bees are a continuall prey to the Titmouse, often a morsell to the Spider: their habitations are digged through and plundered by Mice and many other enemies have they, whereby they daily suffer: yet no conteſt and hostility is so destructive and dangerous, as that which exercised with Bees, creatures of their owne kinde. What is this but an image of that wofull hostility which is exercised between us reasonable creatures, who are conjoyned in one common humanitie, if not religion. We fight with and destroy each other more then those creatures that want reason to temper their passions. No beast is so cruell to man.

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man as himſelfe, where one man is ſlaine by a beaſt, ten thouſands are ſlaine by man. What is that warre which we ſtudie and practiſe, but the art of killing? What ever Turkes and Pagans may doe, O Lord, how long ſhall this brutiſh furie arme Chriſtians againſt each other? Whileſt even Devils are not at enmitie with themſelves, but accord in wickedneſſe, why doe we men ſo mortally oppoſe each other? Oh thou that art the God of peace, compoſe the unquiet hearts of men to an happie and univerſall concord, and at leaſt refreſh our ſoules with the multitude of peace.

FINIS.

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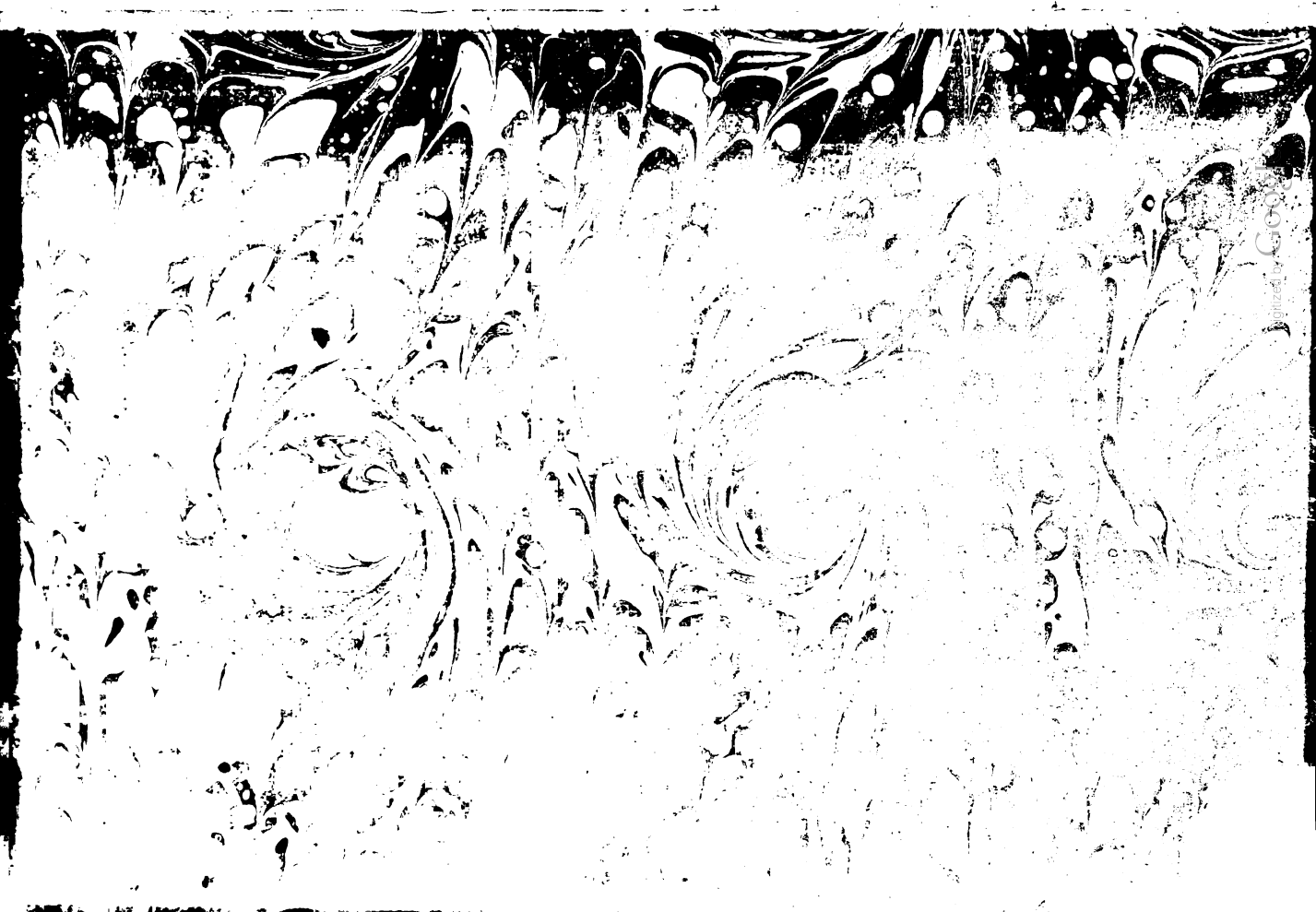

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